

Appendix A

Transportation Assessment

Appendix A

Transportation Assessment

1. INTRODUCTION

This transportation assessment, which supports the evaluation of short-term risks for OU 7 remedial alternatives, relies on the RADTRAN5 computer model (Neuhauer and Kanipe 1998). RADTRAN5 estimates both radiological and nonradiological consequences from incident-free transport of radioactive material and from accidents that occur during that transport. The code is available through Sandia National Laboratory's TRANSNET system. Impacts assessed by the code include:

- Occupational and nonoccupational risk of fatalities from nonradiological impacts associated with incident-free transport.
- Occupational and nonoccupational risk of fatalities from nonradiological impacts associated with vehicle accidents.
- Collective dose equivalent to vehicle crew associated with incident-free transport.
- Collective dose equivalent to on-link members of the public associated with incident-free transport. On-link members of the public are those individuals sharing the transportation route with the transport vehicle.
- Collective dose equivalent to off-link members of the public associated with incident-free transport. Off-link members of the public are those individuals living along the transportation route.
- Collective dose equivalent to members of the public at vehicle stops associated with incident-free transport. For example, these individuals would be exposed to radiation from packages on a truck at a truck stop.
- Collective dose equivalent to members of the public associated with a vehicle accident.

RADTRAN5 performs route-specific analyses. In this assessment, TRU material excavated from OU 7 is transported to the WIPP in New Mexico. The DOE developed WIPP to manage TRU waste. As part of WIPP's mission, DOE developed preferred transportation routes from DOE facilities to WIPP.

The following discusses some fundamentals related to the mathematical models in RADTRAN5. This discussion has been taken directly from the User's Manual for the code (Neuhauer and Kanipe 1998).

RADTRAN5 relies on mathematical models of transportation environments that have been formulated to yield conservative estimates of integrated population dose and other metrics in a way that can be supported by readily available data. Data gathering is usually the most expensive and time-consuming part of performing a risk analysis. Mathematical models more detailed than those in RADTRAN5 may be and have been constructed, but most require at least some input data that either does not exist or would be expensive or impossible to obtain. An example of unobtainable data is detailed

meteorological information for each point on a route. The limitations imposed by data availability were explicitly acknowledged in the development of RADTRAN5.

Details of the transportation environment that either do not affect the calculated risk values or do reduce conservatism have been neglected in some RADTRAN5 models. For example, all route segments are modeled as infinitely long straight lines without grade or curves. This route-segment model provides ease of calculation and yields slightly conservative dose estimates (because the dose calculation involves integration to infinite distance from the package but actual route segments have finite lengths). In another example, all highway and rail links are treated as being one-lane (or track) wide for the purpose of estimating distances to population beside the road or railroad. However, they are treated as being two-lanes wide (one lane or track in each direction) for the purpose of estimating doses to persons in vehicles sharing the road or railroad. The first treatment achieves symmetry (and, hence, mathematical simplicity) around the lane in which the shipment is traveling. The second treatment (one lane each direction) yields the smallest perpendicular distance and, hence, the highest incident-free dose, to persons in vehicles traveling in the opposite direction. Thus, for this latter purpose, all rail routes are modeled as having double tracks, when in fact double tracks are not common. Such departures from absolute parallelism with physical reality have been used (1) when they simplify a calculation without either underestimating or greatly overestimating dose or risk, or (2) when they reduce expensive data-gathering requirements. For example, determining which railroad segments on any given route are single-track and which are double-track would add time and expense to an analysis but yield little or no improvement in the quality of the results.

This appendix presents an overview of the specific analyses performed and the results of those analyses.

1.1 Analyses and Analysis Inputs

Two separate transportation analyses were performed to assess the short-term risks associated with offsite transport of TRU material from OU 7-13/14. One analysis looks at the risks from transporting TRU-contaminated waste and soil, and the other analysis looks at the risks from transporting TRU-contaminated metals. RADTRAN5 contains a data set of standard values for many parameters that are not route-or package-specific. The two analyses use this data set to the fullest extent possible.

Input data that differ from the standard values and that must be developed for the two analyses here are categorized as follows:

- Accident severity data
- Radionuclide release data
- Radionuclide characteristic and dosimetric data (half-life, gamma-ray energy, and dose conversion factors)
- Package physical features, including dose rate and inventory

- Vehicle characteristics
- Route-specific information (length, traffic volume, accident rates, and speed).

1.1.1 Accident Severity and Radionuclide Release Data

RADTRAN5 requires data that expresses the likelihood of accidents of a given severity for urban, suburban, and rural areas. The analyst can specify up to eight severity categories. The probabilities are normalized for each of the three areas, (i.e., the sum of the probabilities over the severity categories for each area [urban, suburban, or rural] must equal one.) For the two analyses performed here, the Severity data set was taken from TRANSNET-developed data sets for TRU waste. Sandia National Laboratory developed a number of RADTRAN5 data sets to assess risks from a variety of scenarios. One such data file represents contact-handled TRU waste shipments from Oak Ridge National Laboratory (ORNL) to WIPP. The Severity data set used here was taken from that file since the ORNL scenario would be consistent with the OU 7-13/14 analyses for this parameter (i.e., similar truck and similar road types). The data appears as follows:

```
SEVERITY
NPOP=1
  NMODE=1
    4.62E-01  3.02E-01  1.76E-01  4.03E-02  1.18E-02  6.47E-03
    5.71E-04  1.13E-04
NPOP=2
  NMODE=1
    4.35E-01  2.85E-01  2.21E-01  5.06E-02  6.64E-03  1.74E-03
    6.72E-05  5.93E-06
NPOP=3
  NMODE=1
    5.83E-01  3.82E-01  2.78E-02  6.36E-03  7.42E-04  1.46E-04
    1.13E-05  9.94E-07
```

NPOP values of 1, 2, and 3 correspond to rural, suburban, and urban areas, respectively. An NMODE value of 1 corresponds to truck transportation. The individual values represent the probability of an accident in each of eight severity categories ranging from least severe to most severe.

Similarly, the release fraction data set is from the ORNL file. Again, the ORNL scenario data is consistent with the OU 7-13/14 analyses since both analyses include contact-handled TRU in drums, which are further contained in transportation TRUPACT IIs. The data set appears as follows:

```
RELEASE
  GROUP=OTHER
    RFRAC
      0.00E+00  1.00E-02  1.00E-06  1.00E-05  1.00E-04  1.00E-03
      1.00E-02  1.00E-01
    AERSOL
      1.00E-01  1.00E-01  1.00E-01  1.00E-01  1.00E-01  1.00E-01
      1.00E-01  1.00E-01
    RESP
      5.00E-02  5.00E-02  5.00E-02  5.00E-02  5.00E-02  5.00E-02
      5.00E-02  5.00E-02
  DEPVEL 0.010000
```

The GROUP value, OTHER, allows RADTRAN5 to use multiple release values for a variety of waste types. OTHER is used here since the waste is not a RADTRAN5 standard waste type. RFRAC is the fraction of the source term released as a result of each of the eight accident severity levels. AERSOL is the fraction of the material released that is in an aerosol form. RESP is the fraction of the aerosol form that is of respirable size. DEPVEL is the deposition velocity of the particles.

1.1.2 Radionuclide Characteristics and Dosimetric Data

RADTRAN5 contains a library of more than 60 radionuclides; however, many of the radionuclides considered in this assessment are not contained in the library and were defined for these analyses. Radionuclides in this analysis that are in the RADTRAN5 library include Am-241, Am-243, C-14 (organic form), Cm-244, Co-60, Cs-137 (and its short-lived daughter Ba-137), I-219, Nb-94, Np-237, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Sr-90 (and its short-lived daughter Y-90), Tc-99, U-233, U-235, and U-238.

Table A-1 contains the radionuclide characteristics and dosimetric data for radionuclides not in the RADTRAN5 library. These data were taken from the same sources used to develop the RADTRAN5 radionuclide library. Specifically, half-life and gamma-ray energies are from ICRP-38 (ICRP 1983); committed inhalation dose conversion factors are from DOE/EH-0071 (DOE 1988b); external cloud shine dose conversion factors are from DOE/EH-0070 (DOE 1988a); external ground shine dose conversion factors are from Federal Guidance Report 12 (EPA 1993); and one-year inhalation dose conversion factors are from Dunning (1990). Some radionuclides did not have committed inhalation dose conversion factors in DOE/EH-0071. For those radionuclides, Dunning (1990) was used, and those values appear shaded in Table A-1. Those radionuclides that appear shaded in Table A-1 have incomplete data sets and were not used in the analysis.

Table A-1. Dosimetry data.

Radionuclide	Half-Life (days)	Photon Energy, MeV/distance	Cloud Shine DCF, mrem-m ³ / μCi-year	Ground Shine DCF, rem-m ² / μCi-d	CEDE Inhalation DCF, rem/Ci	CDE Inhalation DCF to Gonads, rem/Ci	Lung Type	One-Year Lung DCF, rem/Ci	One-Year Marrow DCF, rem/Ci
Ac-225	1.00E + 01	1.79E - 02	6.79E + 01	5.06E - 06	1.00E + 07	0.00E + 00	1	6.60E + 07	1.40E + 07
Ac-227	7.95E + 03	2.30E - 04	6.29E - 01	5.02E - 08	6.70E + 09	1.50E + 09	2	1.30E + 09	3.70E + 08
Ac-228	2.55E - 01	9.30E - 01	4.83E + 03	2.97E - 04	2.90E + 05	0.00E + 00	1	4.70E + 05	1.30E + 05
Al-217	3.74E - 07	3.08E - 04	1.21E + 00	9.70E - 08	3.30E - 01	1.60E - 02	1	2.70E + 00	1.60E - 02
Bi-210	5.01E + 00	0.00E + 00	0.00E + 00	3.36E - 07	1.90E + 05	0.00E + 00	1	1.60E + 06	7.20E + 02
Bi-211	1.49E - 03	4.66E - 02	2.37E + 02	1.47E - 05	5.70E + 02	1.10E + 01	1	4.70E + 03	5.70E + 00
Bi-212	4.20E - 02	1.85E - 01	9.60E + 02	5.73E - 05	2.10E + 04	0.00E + 00	1	1.40E + 05	6.10E + 02
Bi-213	3.17E - 02	1.33E - 01	6.97E + 02	4.22E - 05	1.70E - 04	0.00E + 00	1	No Data	No Data
Bi-214	1.38E - 02	1.46E + 00	8.11E + 03	3.65E - 04	6.30E + 03	0.00E + 00	1	4.90E + 04	1.90E + 02
Cl-36	1.10E + 08	1.55E - 04	4.24E - 05	2.15E - 07	2.00E + 04	0.00E + 00	2	No Data	No Data
Fr-221	3.33E - 03	3.10E - 02	1.56E + 02	9.54E - 06	4.00E + 03	2.20E + 02	1	3.20E + 03	2.20E + 02
Fr-223	1.51E - 02	5.88E - 02	2.31E + 02	1.8E - 05	6.10E - 03	5.20E + 03	1	No Data	No Data
Ni-59	2.74E + 07	2.41E - 03	1.93E - 01	0.00E - 00	1.30E - 03	0.00E + 00	2	No Data	No Data
Np-239	2.36E + 00	1.72E - 01	8.40E + 02	5.22E - 05	2.20E + 03	0.00E + 00	1	8.70E + 03	3.50E + 02
Pa-231	1.20E + 07	4.76E - 02	1.51E + 02	1.30E - 05	1.30E + 09	0.00E + 00	3	2.60E + 08	1.40E + 07
Pa-233	2.70E + 01	2.03E - 01	1.07E + 03	6.24E - 05	8.60E + 03	0.00E + 00	1	9.00E + 02	2.70E + 03
Pa-234	2.79E - 01	1.75E + 00	1.02E + 04	5.89E - 04	7.40E + 02	2.30E + 02	1	3.30E + 03	1.30E + 02
Pa-234m	8.13E - 04	1.13E - 02	5.97E + 01	4.90E - 06	2.00E + 00	2.90E - 04	1	1.60E + 01	5.20E - 03
Pb-209	1.36E - 01	0.00E + 00	0.00E + 00	9.63E - 08	9.00E + 01	0.00E + 00	1	4.30E + 02	2.20E + 01
Pb-210	8.14E + 03	4.81E - 03	6.70E + 00	7.94E - 07	1.30E + 07	0.00E + 00	2	1.60E + 05	7.40E + 05
Pb-211	2.51E - 02	5.03E - 02	2.61E + 02	1.63E - 05	8.00E + 03	0.00E + 00	1	6.60E + 04	9.70E + 02
Pb-212	4.43E - 01	1.48E - 01	7.40E + 02	4.58E - 05	1.80E + 05	0.00E + 00	1	7.30E + 05	1.20E + 05
Pb-214	1.86E - 02	2.48E - 01	1.25E + 03	7.81E - 05	6.70E + 03	0.00E + 00	1	5.50E + 04	1.00E + 03
Po-210	1.38E + 02	8.50E - 06	4.44E - 02	2.65E - 09	8.10E + 06	0.00E + 00	1	4.80E + 07	1.50E + 07
Po-211	5.97E - 06	7.79E - 03	No Data	2.44E - 06	No Data	1	No Data	No Data	No Data

Table A-1. (continued).

Radionuclide	Half-Life (days)	Photon Energy, MeV/distance	Cloud Shine DCF, mrem-m ³ / μCi-year	Ground Shine DCF, rem-m ² / μCi-d	CEDE DCF, rem/Ci	CDE Inhalation DCF to Gonads, rem/Ci	Lung Type	One-Year Lung DCF, rem/Ci	One-Year Marrow DCF, rem/Ci
Po-212	3.53E - 12	0.00E + 00	0.00E + 00	0.00E + 00	1.80E - 06	5.40E - 17	1	1.50E - 05	5.40E - 17
Po-213	4.86E - 11	0.00E + 00	1.59E - 01	0.00E + 00	2.40E - 05	2.40E - 09	1	2.00E - 04	2.40E - 09
Po-214	1.90E - 09	8.33E - 05	4.34E - 01	2.60E - 08	8.70E - 04	1.10E - 07	1	7.20E - 03	1.10E - 07
Po-215	2.06E - 08	1.76E - 04	7.45E - 01	5.57E - 08	1.60E - 02	5.20E - 04	1	1.40E - 01	5.20E - 04
Po-216	1.74E - 06	1.69E - 05	7.56E - 02	5.28E - 09	1.40E + 00	8.40E - 02	1	1.10E + 01	8.40E - 02
Po-218	2.12E - 03	9.12E - 06	0.00E + 00	2.84E - 09	1.60E + 03	8.40E + 01	1	1.30E + 04	8.50E + 01
Ra-223	1.14E + 01	1.33E - 01	6.72E + 02	4.10E - 05	7.50E + 06	0.00E + 00	1	6.10E + 07	8.20E + 05
Ra-224	3.66E + 00	9.89E - 03	5.06E + 01	3.06E - 06	2.90E + 06	0.00E + 00	1	2.40E + 07	4.10E + 05
Ra-225	1.48E + 01	1.37E - 02	3.40E + 01	4.26E - 06	7.50E + 06	0.00E + 00	1	6.20E + 06	6.00E + 05
Ra-226	5.84E + 05	6.74E - 03	3.43E + 01	2.06E - 06	7.90E + 06	0.00E + 00	3	5.90E + 07	3.20E + 05
Ra-228	2.10E + 03	4.14E - 09	3.20E - 07	0.00E + 00	4.20E + 06	0.00E + 00	2	2.50E + 07	1.70E + 05
Rn-219	4.58E - 05	5.58E - 02	No Data	1.76E - 05	No Data	No Data	1	No Data	No Data
Rn-220	6.44E - 04	3.85E - 04	No Data	1.22E - 07	No Data	No Data	1	No Data	No Data
Rn-222	3.82E + 00	3.98E - 04	No Data	1.26E - 07	No Data	No Data	1	No Data	No Data
Th-227	1.87E + 01	1.06E - 01	5.23E + 02	3.33E - 05	1.60E + 07	0.00E + 00	1	1.30E + 08	8.90E + 06
Th-228	6.98E + 02	3.30E - 03	9.89E + 00	7.52E - 07	3.10E + 08	0.00E + 00	3	1.30E + 09	1.20E + 08
Th-229	2.68E + 06	9.54E - 02	4.32E + 02	2.73E - 05	2.00E + 09	0.00E + 00	3	1.40E + 09	1.40E + 08
Th-230	2.81E + 07	1.55E - 03	1.96E + 00	2.40E-07	3.20E + 08	0.00E + 00	3	2.20E + 08	1.40E + 08
Th-231	1.06E + 00	2.55E - 02	5.82E + 01	5.89E - 06	8.10E + 02	0.00E + 00	1	3.00E + 03	9.10E + 01
Th-232	5.13E + 12	1.33E - 03	9.35E - 01	1.76E - 07	1.60E + 09	0.00E + 00	3	2.00E + 08	1.90E + 07
Th-234	2.41E + 01	9.34E - 03	3.88E + 01	2.66E - 06	3.30E + 04	0.00E + 00	1	2.40E + 05	1.50E + 04
Tl-207	3.31E - 03	2.21E - 03	1.14E + 01	1.20E - 06	5.10E + 00	1.00E - 01	1	3.70E + 01	1.00E - 01
Tl-208	2.13E - 03	3.36E + 00	1.98E + 04	9.54E - 04	5.60E + 00	1.90E - 01	1	3.60E + 01	8.10E - 01
Tl-209	1.53E - 03	2.03E + 00	1.11E + 04	6.08E - 04	4.80E + 00	2.00E - 01	1	3.30E + 01	5.00E - 01
U-234	8.92E + 07	1.73E - 03	7.65E - 01	2.39E - 07	1.30E + 08	0.00E + 00	3	2.30E + 08	2.70E + 05

Table A-1. (continued).

Radionuclide	Half-Life (days)	Photon Energy, MeV/distance	Cloud Shine DCF, mrem-m ³ / μCi-year	Ground Shine DCF, rem-m ² / μCi-d	CEDE Inhalation DCF, rem/Ci	CDE Inhalation DCF to Gonads, rem/Ci	Lung Type	One-Year Lung DCF, rem/Ci	One-Year Marrow DCF, rem/Ci
U-236	8.55E + 09	1.57E - 03	6.05E - 01	2.08E - 07	1.20E + 08	0.00E + 00	3	2.20E + 08	2.60E + 05

CEDE = committed effective dose equivalent

DCF = dose conversion factor

1.1.3 Package Physical Features Including Dose Rate and Inventory

Package physical features were taken from the ORNL contact-handled TRU scenario file. These features correspond to a truck with transportation TRUPACT IIs. The characteristic package size is 7.6.

Package dose rates were developed using MicroShield, a commercially available radiation shielding code. These analyses are discussed in Appendix B. The dose rate for a TRUPACT II of OU 7-13/14 soil was rounded up to 1 mrem/hour at 1 m. The dose rate off the truck was rounded up and set at 2 mrem/hour at 1 m since the truck carries two packages. The TRUPACT II with metals had a dose rate of 1 mrem/hour at 1 m, after rounding, and the truck dose rate is 3 mrem/hour at 1 m since a truck will carry three metal TRUPACT IIs. The entire external dose rate was caused by gamma radiation.

The inventory is the total quantity of each radionuclide in a TRUPACT II. A TRUPACT II contains fourteen 55-gal drums, or 2.91 m³ of waste. The inventory for the soil shipments is the product of 2.91 m³ and the soil concentration values in curies/m³ presented in Table 6 in the main body of this report. The inventory for the metals shipments is the product of 2.91 m³ and the metal concentration values in curies/m³ presented in Table 7 in the main body of this report.

1.1.4 Vehicle Characteristics

The crewmembers were assumed to be, on average, 10 m from the waste shipment as modeled in the ORNL TRU scenario. The analysis considered 29,422 shipments of soil and 1,454 shipments of metal. These values are from Table 4 of the main report.

1.1.5 Route-Specific Information

TRANSNET includes computer codes that determine the routes a shipment will take from point A to point B. When shipments go to WIPP, the code contains WIPP-preferred routes. The two analyses employed the same route: a WIPP-preferred route from INEEL to WIPP. The input data for the routing was divided into links, with each link representing a state along the route from INEEL to WIPP. The data is provided in Table A-2.

Table A-2. Route-specific data.

Link	Distance, km	Speed, km/hour	Population, Persons/km ²	Vehicle Density, Vehicle/hour	Accident Rate, Accident/km
IDU	1	65	1764.7	1320	1.45E - 06
IDS	15	81	321.4	740	1.45E - 06
IDR	198	105	5.4	740	1.45E - 06
UTU	2.2	65	2257.6	2834	1.45E - 06
UTS	19.8	81	354.7	425	1.45E - 06
UTR	183.9	105	7.5	425	1.45E - 06
WYU	1.8	65	2519.4	363	1.45E - 06
WYS	30.7	81	383	266	1.45E - 06
WYR	550.1	105	2	266	1.45E - 06
COU	19	65	2064.7	2489	1.45E - 06
COS	85.5	81	414.2	563	1.45E - 06
COR	394.4	105	5.4	563	1.45E - 06
NMU	0.9	65	1764.7	1629	1.45E - 06
NMS	11.5	81	380.9	533	1.45E - 06
NMR	325.6	105	2.3	533	1.45E - 06
NMULoc	1.5	24	1770.4	313	1.45E - 06
NMSLoc	25.4	40	395.3	186	1.45E - 06
NMRLoc	383.3	73	2.7	186	1.45E - 06

The first column of Table A-2 provides a unique link label. The label is the two-letter postal code for the state, followed by a U, S, or R (for urban, suburban, and rural). New Mexico (NM) has three additional links with a “Loc” in the link name. These links represent travel on noninterstate roads closer to the WIPP site. The second column provides the number of kilometers traveled in that population section. These values are from the Highway Code in TRANSNET. The next column contains the speed of the vehicle, in km/hour. These values are default values from RADTRAN4 (interstate and urban = 65, interstate and suburban = 81, interstate and rural = 105, noninterstate and urban = 24, noninterstate and suburban = 73, and noninterstate rural = 73). The next column contains the population density for each segment. These values are from HIGHWAY.

The next column presents vehicle density. Data on traffic density were compiled on a state-by-state basis and are included in Table A-3. This information is from *Highway Statistics '97* (DOT 1997). The report presents the number of miles of interstate highway or other roads where the traffic count is within a certain range. To get the values in Table A-3, the following steps were taken:

1. The midpoints of the vehicle ranges for Rural Interstate (3000, 8000, 15000, 25000); Rural Other Principal Arteries (500, 1500, 2500, 6500, 12500, 17500); Urban Interstate (7500, 22500, 47500, 80000, 120000); and Urban Other Freeways and Expressways (7500, 22500, 47500, 80000, 120000) were taken as average traffic volumes

2. These volumes were then weighted by the number of miles in each range and an average was determined for each of the four road types
3. The traffic count was then assigned to a link based on the location and road type.

The next column presents accident rates. Accident rates are for large trucks, and a single value based on national averages for 1999 was used to develop a value of 1.45×10^{-6} incidents/vehicle-km traveled. The data was taken from a National Traffic Safety Administration annual report. The report is available at www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF1999.pdf.

Table A-3. Traffic count by state.

State	Rural/Suburban		Urban	
	Interstate	Other Principal Arterial	Interstate	Other Principal Arterial
Colorado	563	216	2489	1618
Idaho	740	147	1320	0
New Mexico	533	186	1629	313
Utah	425	194	2834	1458
Wyoming	266	89	363	313

1.2 Results

Tables A-4 and A-5 present the results.

Table A-4. Estimated dose equivalents from offsite transportation (Idaho National Engineering and Environmental Laboratory-Waste Isolation Pilot Plant) (retrieval only).

Route	Transportation Crew (Person-rem)	Incident Free to the Public (Person-rem)	Maximally Exposed Individual Dose (Incident Free) (rem)	Dose to Public from Transport Vehicle Stops (Person-rem)	Transportation Accident Dose (Severity Class 2) (rem)	Sum of Individual Transportation Accident and Stops (Person-rem)
Transuranic waste and soils	4.50E + 02	1.49E + 02	3.54E - 03	2.76E + 03	6.37e+01	1.46E-01
Transuranic metals	3.30E + 01	1.10E + 01	2.62E - 04	2.04E + 02	3.31E+01	5.91E+00
Total	4.83E + 02	1.60E + 02	3.80E - 03	2.96E + 03	9.68E+01	6.01E+00
						3.12E + 03

Table A-5. Nonradiological risks from offsite transportation (Idaho National Engineering and Environmental Laboratory-Waste Isolation Pilot Plant) (retrieval only).

Route	Public, Nonradiological Risks (Normal Transportation)	Occupational, Nonradiological Risks (Accidents During Transportation)	Public, Nonradiological Risks (Accidents During Transportation)
Transuranic waste and soils	0	1.84E + 00	6.50E + 00
Transuranic metals	0	9.10E - 02	3.21E - 01
Total	0	1.93E + 00	6.82E + 00

The following information included in this attachment is the RADTRAN5 output files used to obtain the above values.

RADTRAN5 OUTPUT FILE FOR TRU WASTE AND SOIL SHIPMENTS

RUN DATE: [9-Mar-02 AT 07:45:11]

PAGE 1

RRRR	AAA	DDDD	TTTTT	RRRR	AAA	N	N	55555
R R	A A	D D	T	R R	A A	NN	N	5
R R	A A	D D	T	R R	A A	N N	N	5
RRRR	A A	D D	T	RRRR	A A	N	NN	5555
R R	AAAAA	D D	T	R R	AAAAA	N	N	5
R R	A A	D D	T	R R	A A	N	N	5 5
R R	A A	DDDD	T	R R	A A	N	N	5555

RADTRAN 5.2.5 January 29, 2002

INPUT ECHO

&& Edited Sat Mar 9 07:44:25 2002
&& Truck from INEEL to WIPP, OU 7-13/14 Waste Soil

TITLE OU 7-13/14 Waste Soil

INPUT STANDARD

STD: 0 10 18	&& DIMEN=NSEV NRAD NAREAS
STD: 1 3 3 0	&& PARM=IRNKC IANA ISEN IPSQSB
STD: .TRUE. .FALSE.	&& FORM = UNIT, SI-UNITS?
STD: 2.3E12	&& NEVAL FOR CF252
STD: 9.25E5 5.77E6 1.27E6	&& RPCTHY FOR I125, I129, I131
STD: 0.0 0.0 0.0 0.0 0.0	&& TRANSFER GAMMA
STD: 7.42E-3 2.02E-2 6.17E-5 3.17E-8 0.0	&& TRANSFER NEUTRON
STD: 30 24	&& MITDDIST MITDVEL
STD: 1 2 .0018	&& ITRAIN FMINCL DDRWEF
STD: 33 68 105 244 369	&& CENTER LINE
STD: 561 1018 1628 2308 4269	&& DISTANCES
STD: 5468 11136 13097 21334 40502	&& FOR AVERAGE
STD: 69986 89860 120878 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	&& US CLOUD
STD: 4.59E+02 1.53E+03 3.94E+03 1.25E+04 3.04E+04 6.85E+04 1.76E+05 4.45E+05	
STD: 8.59E+05 2.55E+06 4.45E+06 1.03E+07 2.16E+07 5.52E+07 1.77E+08 4.89E+08	
STD: 8.12E+08 1.35E+09 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	&& AREADA
STD: 3.42E-03 1.72E-03 8.58E-04 3.42E-04 1.72E-04 8.58E-05 3.42E-05 1.72E-05	
STD: 8.58E-06 3.42E-06 1.72E-06 8.58E-07 3.42E-07 1.72E-07 8.58E-08 5.42E-08	
STD: 4.30E-08 3.42E-08 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	&& DFLEV
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0	
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0	
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0	&& RADIST
STD: 0.5	&& SMLPKG
STD: 1.0 0.87 0.018	&& SHIELDING FACTORS RR RS RU
STD: 30 30 800	&& OFFLINK {FREEWAY}
STD: 27 30 800	&& OFFLINK {NON-FREEWAY}
STD: 5 8 800	&& OFFLINK {CITY STREETS}
STD: 30 30 800	&& OFFLINK {RAILWAY}
STD: 200 200 1000	&& OFFLINK {WATERWAY}
STD: 15 3 3 3 4	&& ONLINK {FWAY NONFWY STREET RAIL ADJ}
STD: 6.0 4 40.0	&& RPD FNOATT INTERDICT
STD: 0.05 0.2 3.3E-4	&& BDF CULVL BRATE
STD: 0.9 0.1	&& UBF USWF
STD: 1.0 10.0 1.0	&& EVACUATION SURVEY CAMPAIGN

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OU 7-13/14 Waste Soil

```
STD: 0.0 0.0 1.5E-8 5.3E-8 && HIGHWAY - RURAL - NONRAD
STD: 0.0 0.0 3.7E-9 1.3E-8 && HIGHWAY - SUBURBAN - NONRAD
STD: 0.0 0.0 2.1E-9 7.5E-9 && HIGHWAY - URBAN - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - R - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - S - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - U - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - R - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - S - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - U - NONRAD
STD: 0.0 0.0 0.0 0.0 0.0 0.0 && PSPROB
STD: 0.67 0.67 0.42 && TIMENDE NON-DISPERSAL EVAC TIME (LCF&EA
STD: 2 2 1 && FLAGS=IUOPT IACC REGCHECK
STD: 5E-4, 4E-4, 1.3E-4 && LCFCON(1), LCFCON(2), GECON
STD: R5INGEST.BIN && INGESTION FILE

FORM UNIT
DIMEN 8 10 18
PARM 1 3 1 0
SEVERITY
NPOP=1
NMODE=1
 4.62E-01 3.02E-01 1.76E-01 4.03E-02 1.18E-02 6.47E-03
 5.71E-04 1.13E-04
NPOP=2
NMODE=1
 4.35E-01 2.85E-01 2.21E-01 5.06E-02 6.64E-03 1.74E-03
 6.72E-05 5.93E-06
NPOP=3
NMODE=1
 5.83E-01 3.82E-01 2.78E-02 6.36E-03 7.42E-04 1.46E-04
 1.13E-05 9.94E-07

RELEASE
GROUP=OTHER
RFRAC
 0.00E+00 1.00E-02 1.00E-06 1.00E-05 1.00E-04 1.00E-03
 1.00E-02 1.00E-01
AERSOL
 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01
 1.00E-01 1.00E-01
RESP
 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02
 5.00E-02 5.00E-02
LOS
 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
 0.00E+00 0.00E+00
DEPVEL 0.010000
DEFINE AC225
 1.00E+01 1.79E-02 2.15E-03 5.06E-06 1.00E+07 0.00E+00
 6.60E+07 1.40E+07
```

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AC225ING
DEFINE AC227
 7.95E+03 2.30E-04 1.99E-05 5.02E-08 6.70E+09 1.50E+09
 1.30E+09 3.70E+08
AC227ING
DEFINE AC228
 2.55E-01 9.30E-01 1.53E-01 2.97E-04 2.90E+05 0.00E+00
 4.70E+05 1.30E+05
AC228ING
DEFINE AT217
 3.74E-07 3.08E-04 3.84E-05 9.70E-08 3.30E-01 1.60E-02
 2.70E+00 1.60E-02
AT217ING
DEFINE BI210
 5.01E+00 0.00E+00 0.00E+00 3.36E-07 1.90E+05 0.00E+00
 1.60E+06 7.20E+02
BI210ING
DEFINE BI211
 1.49E-03 4.66E-02 7.51E-03 1.47E-05 5.70E+02 1.10E+01
 4.70E+03 5.70E+00
BI211ING
DEFINE BI212
 4.20E-02 1.85E-01 3.04E-02 5.73E-05 2.10E+04 0.00E+00
 1.40E+05 6.10E+02
BI212ING
DEFINE BI214
 1.38E-02 1.46E+00 2.57E-01 3.65E-04 6.30E+03 0.00E+00
 4.90E+04 1.90E+02
BI214ING
DEFINE FR221
 3.33E-03 3.10E-02 4.95E-03 9.54E-06 4.00E+03 2.20E+02
 3.20E+03 2.20E+02
FR221ING
DEFINE NP239
 2.36E+00 1.72E-01 2.66E-02 5.22E-05 2.20E+03 0.00E+00
 8.70E+03 3.50E+02
NP239ING
DEFINE PA231
 1.20E+07 4.76E-02 4.79E-03 1.30E-05 1.30E+09 0.00E+00
 2.60E+08 1.40E+07
PA231ING
DEFINE PA233
 2.70E+01 2.03E-01 3.39E-02 6.24E-05 8.60E+03 0.00E+00
 9.00E+02 2.70E+03
PA233ING
DEFINE PA234
 2.79E-01 1.75E+00 3.23E-01 5.89E-04 7.40E+02 2.30E+02
 3.30E+03 1.30E+02
PA234ING
DEFINE PA234M
 8.13E-04 1.13E-02 1.89E-03 4.90E-06 2.00E+00 2.90E-04
 1.60E+01 5.20E-03
PA234MING

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```
DEFINE PB209
  1.36E+00  0.00E+00  0.00E+00  9.63E-08  9.00E+01  0.00E+00
  4.30E+02  2.20E+01
PB209ING
DEFINE PB210
  8.14E+03  4.81E-03  2.12E-04  7.94E-07  1.30E+07  0.00E+00
  1.60E+05  7.40E+05
PB210ING
DEFINE PB211
  2.51E-02  5.03E-02  8.27E-03  1.63E-05  8.00E+03  0.00E+00
  6.60E+04  9.70E+02
PB211ING
DEFINE PB212
  4.43E-01  1.48E-01  2.35E-02  4.58E-05  1.80E+05  0.00E+00
  7.30E+05  1.20E+05
PB212ING
DEFINE PB214
  1.86E-02  2.48E-01  3.96E-02  7.81E-05  6.70E+03  0.00E+00
  5.50E+04  1.00E+03
PB214ING
DEFINE PO210
  1.38E+02  8.50E-06  1.41E-06  2.65E-09  8.10E+06  0.00E+00
  4.80E+07  1.50E+07
PO210ING
DEFINE PO212
  3.53E-12  0.00E+00  0.00E+00  0.00E+00  1.80E-06  5.40E-17
  1.50E-05  5.40E-17
PO212ING
DEFINE PO213
  4.86E-11  0.00E+00  5.04E-06  0.00E+00  2.40E-05  2.40E-09
  2.00E-04  2.40E-09
PO213ING
DEFINE PO214
  1.90E-09  8.33E-05  1.38E-05  2.60E-08  8.70E-04  1.10E-07
  7.20E-03  1.10E-07
PO214ING
DEFINE PO215
  2.06E-08  1.76E-04  2.36E-05  5.57E-08  1.60E-02  5.20E-04
  1.40E-01  5.20E-04
PO215ING
DEFINE PO216
  1.74E-06  1.69E-05  2.40E-06  5.28E-09  1.40E+00  8.40E-02
  1.10E+01  8.40E-02
PO216ING
DEFINE PO218
  2.12E-03  9.12E-06  0.00E+00  2.84E-09  1.60E+03  8.40E+01
  1.30E+04  8.50E+01
PO218ING
DEFINE RA223
  1.14E+01  1.33E-01  2.13E-02  4.10E-05  7.50E+06  0.00E+00
  6.10E+07  8.20E+05
RA223ING
DEFINE RA224
```

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3.66E+00	9.89E-03	1.60E-03	3.06E-06	2.90E+06	0.00E+00
2.40E+07	4.10E+05				
RA224ING					
DEFINE RA225					
1.48E+01	1.37E-02	1.08E-03	4.26E-06	7.50E+06	0.00E+00
6.20E+06	6.00E+05				
RA225ING					
DEFINE RA226					
5.84E+05	6.74E-03	1.09E-03	2.06E-06	7.90E+06	0.00E+00
5.90E+07	3.20E+05				
RA226ING					
DEFINE RA228					
2.10E+03	4.14E-09	1.01E-11	0.00E+00	4.20E+06	0.00E+00
2.50E+07	1.70E+05				
RA228ING					
DEFINE TH227					
1.87E+01	1.06E-01	1.66E-02	3.33E-05	1.60E+07	0.00E+00
1.30E+08	8.90E+06				
TH227ING					
DEFINE TH228					
6.98E+02	3.30E-03	3.14E-04	7.52E-07	3.10E+08	0.00E+00
1.30E+09	1.20E+08				
TH228ING					
DEFINE TH229					
2.68E+06	9.54E-02	1.37E-02	2.73E-05	2.00E+09	0.00E+00
1.40E+09	1.40E+08				
TH229ING					
DEFINE TH230					
2.81E+07	1.55E-03	6.21E-05	2.40E-07	3.20E+08	0.00E+00
2.20E+08	1.40E+08				
TH230ING					
DEFINE TH231					
1.06E+00	2.55E-02	1.84E-03	5.89E-06	8.10E+02	0.00E+00
3.00E+03	9.10E+01				
TH231ING					
DEFINE TH232					
5.13E+12	1.33E-03	2.96E-05	1.76E-07	1.60E+09	0.00E+00
2.00E+08	1.90E+07				
TH232ING					
DEFINE TH234					
2.41E+01	9.34E-03	1.23E-03	2.66E-06	3.30E+04	0.00E+00
2.40E+05	1.50E+04				
TH234ING					
DEFINE TL207					
3.31E-03	2.21E-03	3.61E-04	1.20E-06	5.10E+00	1.00E-01
3.70E+01	1.00E-01				
TL207ING					
DEFINE TL208					
2.13E-03	3.36E+00	6.28E-01	9.54E-04	5.60E+00	1.90E-01
3.60E+01	8.10E-01				
TL208ING					
DEFINE TL209					
1.53E-03	2.03E+00	3.52E-01	6.08E-04	4.80E+00	2.00E-01

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```
3.30E+01 5.00E-01
TL209ING
DEFINE U234
 8.92E+07 1.73E-03 2.43E-05 2.39E-07 1.30E+08 0.00E+00
 2.30E+08 2.70E+05
U234ING
DEFINE U236
 8.55E+09 1.57E-03 1.92E-05 2.08E-07 1.20E+08 0.00E+00
 2.20E+08 2.60E+05
U236ING
PACKAGE    TRU_S  1.000E+00 1.000 0.000      7.60
  AC225    7.140E-09 OTHER
  AC227    1.620E-09 OTHER
  AC228    6.900E-06 OTHER
  AM241    3.160E+00 OTHER
  AM243    2.270E-03 OTHER
  AT217    7.140E-09 OTHER
  BI210    8.970E-05 OTHER
  BI211    1.550E-09 OTHER
  BI212    6.150E-05 OTHER
  BI214    1.020E-03 OTHER
  C14ORG   8.480E-03 OTHER
  CM244    7.930E-01 OTHER
  CO60     8.110E-03 OTHER
  CS137    9.920E-03 OTHER
  FR221    7.140E-09 OTHER
  I129     2.680E-06 OTHER
  NB94     1.700E-02 OTHER
  NP237    4.790E-05 OTHER
  NP239    2.270E-03 OTHER
  PA231    2.060E-08 OTHER
  PA233    4.770E-05 OTHER
  PA234    3.180E-06 OTHER
  PA234M   1.990E-03 OTHER
  PB209    7.140E-09 OTHER
  PB210    9.030E-05 OTHER
  PB211    1.550E-09 OTHER
  PB212    6.150E-05 OTHER
  PB214    1.020E-03 OTHER
  PO210    7.370E-05 OTHER
  PO212    3.940E-05 OTHER
  PO213    6.980E-09 OTHER
  PO214    1.020E-03 OTHER
  PO215    1.550E-09 OTHER
  PO216    6.150E-05 OTHER
  PO218    1.020E-03 OTHER
  PU238    2.830E-01 OTHER
  PU239    1.100E+00 OTHER
  PU240    2.900E-01 OTHER
  PU241    1.430E+01 OTHER
  PU242    2.800E-04 OTHER
  RA223    1.550E-09 OTHER
  RA224    6.150E-05 OTHER
```

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RA225	7.230E-09	OTHER						
RA226	1.020E-03	OTHER						
RA228	6.900E-06	OTHER						
SR90	7.140E+00	OTHER						
TC99	1.030E-03	OTHER						
TH227	1.550E-09	OTHER						
TH228	6.120E-05	OTHER						
TH229	7.370E-09	OTHER						
TH230	5.620E-07	OTHER						
TH231	9.400E-05	OTHER						
TH232	2.270E-05	OTHER						
TH234	1.990E-03	OTHER						
TL207	1.540E-09	OTHER						
TL208	2.210E-05	OTHER						
TL209	1.540E-10	OTHER						
U233	2.560E-05	OTHER						
U234	1.150E-03	OTHER						
U235	9.400E-05	OTHER						
U236	4.860E-05	OTHER						
U238	1.990E-03	OTHER						
END								
VEHICLE -1 TRUCK	2.000E+00	1.000 0.000	7.60	29422.00				
	2.00	10.00 1.000	7.60					
TRU_S	2.00							
EOF								
LINK IDU	TRUCK	1.00	65.0	2.0 1764.70	1320.00	1.45E-06	U 1	0.00
LINK IDS	TRUCK	15.00	81.0	2.0 321.40	740.00	1.45E-06	S 1	0.00
LINK IDR	TRUCK	198.00	105.0	2.0 5.40	740.00	1.45E-06	R 1	0.00
LINK UTU	TRUCK	2.20	65.0	2.0 2257.60	2834.00	1.45E-06	U 1	0.00
LINK UTS	TRUCK	19.80	81.0	2.0 354.70	425.00	1.45E-06	S 1	0.00
LINK UTR	TRUCK	183.90	105.0	2.0 7.50	425.00	1.45E-06	R 1	0.00
LINK WYU	TRUCK	1.80	65.0	2.0 2519.40	363.00	1.45E-06	U 1	0.00
LINK WYS	TRUCK	30.70	81.0	2.0 383.00	266.00	1.45E-06	S 1	0.00
LINK WYR	TRUCK	550.10	105.0	2.0 2.00	266.00	1.45E-06	R 1	0.00
LINK COU	TRUCK	19.00	65.0	2.0 2064.70	2489.00	1.45E-06	U 1	0.00
LINK COS	TRUCK	85.50	81.0	2.0 414.20	563.00	1.45E-06	S 1	0.00
LINK COR	TRUCK	394.40	105.0	2.0 5.40	563.00	1.45E-06	R 1	0.00
LINK NMU	TRUCK	0.90	65.0	2.0 1764.70	1629.00	1.45E-06	U 1	0.00
LINK NMS	TRUCK	11.50	81.0	2.0 380.90	533.00	1.45E-06	S 1	0.00
LINK NMR	TRUCK	325.60	105.0	2.0 2.30	533.00	1.45E-06	R 1	0.00
LINK NMULOC	TRUCK	1.50	24.0	2.0 1770.40	313.00	1.45E-06	U 2	0.00
LINK NMSLOC	TRUCK	25.40	40.0	2.0 395.30	186.00	1.45E-06	S 2	0.00
LINK NMRLOC	TRUCK	383.30	73.0	2.0 2.70	186.00	1.45E-06	R 2	0.00
STOP STOPTRK	TRUCK	50.00	20.00	20.00 1.000	23.804			
EOF								

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PACKAGE AND MATERIAL CHARACTERISTICS

MATERIAL	DIMENSION (METERS)	EFFECTIVE DIMENSION METERS	K(0)	FRACTION METERS SQ.	FRACTION GAMMA	FRACTION NEUTRON	DOSE RATE (REM/HR)
TRU_S	7.600E+00	5.936E+00	1.574E+01	1.000E+00	0.000E+00	1.000E+00	

K(0) IS DOSE RATE CONVERSION FACTOR

VEHICLE CHARACTERISTICS

VEHICLE NAME	TRUCK
MODE TYPE	HIGHWAY
EXCLUSIVE USE	YES
DOSE RATE (REM/HR)	2.00E+00
K(0) (SQ. METERS)	1.57E+01
VEHICLE SIZE (M)	7.60E+00
EFFECTIVE SIZE (M)	5.94E+00
NUMBER OF SHIPMENTS	2.94E+04
NUMBER OF CREW	2.00E+00
CREW DISTANCE (M)	1.00E+01
CREW DOSE ADJUSTMENT FACT	1.00E+00
CREW EXPOSER WIDTH (M)	7.60E+00
EFFECTIVE EXPOSER WIDTH	5.94E+00
K(0) (SQ M) CREW EXPOSURE	1.57E+01

VEHICLE	MATERIAL	NO. PACKAGES
TRUCK	TRU_S	2.00E+00

TRANSFER

COEFFICIENTS:	MU	A(1)	A(2)	A(3)	A(4)
GAMMA	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NEUTRON	7.420E-03	2.020E-02	6.170E-05	3.170E-08	0.000E+00

DISTANCES (METERS)	FREEWAY	SECONDARY	STREET	RAIL	WATER	ADJACENT
OFFLINK:						
MINIMUM DISTANCE	3.00E+01	2.70E+01	5.00E+00	3.00E+01	2.00E+02	
SIDEWALK + MINIMUM	3.00E+01	3.00E+01	8.00E+00	3.00E+01	2.00E+02	
MAXIMUM DISTANCE	8.00E+02	8.00E+02	8.00E+02	8.00E+02	1.00E+03	
ONLINK:						
OPPOSITE DIRECTION	1.50E+01	3.00E+00	3.00E+00	3.00E+00		
ADJACENT VEHICLE						4.00E+00

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STOP RELATED DATA

STOPTRK

VEHICLE	TRUCK
PERSONS	5.00E+01
MINIMUM DISTANCE (M)	2.00E+01
MAXIMUM DISTANCE (M)	2.00E+01
SHIELDING FACTOR	1.00E+00
TIME (HR)	2.38E+01

HANDLING RELATED DATA

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LINK RELATED DATA

VEHICLE	IDU	IDS	IDR	UTU	UTS
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	1.00E+00	1.50E+01	1.98E+02	2.20E+00	1.98E+01
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	6.50E+01	8.10E+01	1.05E+02	6.50E+01	8.10E+01
POPULATION DENSITY	1.76E+03	3.21E+02	5.40E+00	2.26E+03	3.55E+02
VEHICLE DENSITY	1.32E+03	7.40E+02	7.40E+02	2.83E+03	4.25E+02
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	URBAN	SUBURBAN	RURAL	URBAN	SUBURBAN
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	UTR	WYU	WYS	WYR	COU
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	1.84E+02	1.80E+00	3.07E+01	5.50E+02	1.90E+01
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	1.05E+02	6.50E+01	8.10E+01	1.05E+02	6.50E+01
POPULATION DENSITY	7.50E+00	2.52E+03	3.83E+02	2.00E+00	2.06E+03
VEHICLE DENSITY	4.25E+02	3.63E+02	2.66E+02	2.66E+02	2.49E+03
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	RURAL	URBAN	SUBURBAN	RURAL	URBAN
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	COS	COR	NMU	NMS	NMR
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	8.55E+01	3.94E+02	9.00E-01	1.15E+01	3.26E+02
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	8.10E+01	1.05E+02	6.50E+01	8.10E+01	1.05E+02
POPULATION DENSITY	4.14E+02	5.40E+00	1.76E+03	3.81E+02	2.30E+00
VEHICLE DENSITY	5.63E+02	5.63E+02	1.63E+03	5.33E+02	5.33E+02
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	SUBURBAN	RURAL	URBAN	SUBURBAN	RURAL
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	NMULoc	NMSLoc	NMRLoc		
	TRUCK	TRUCK	TRUCK		
DISTANCE (KM)	1.50E+00	2.54E+01	3.83E+02		
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00		
SPEED (KM/HR)	2.40E+01	4.00E+01	7.30E+01		
POPULATION DENSITY	1.77E+03	3.95E+02	2.70E+00		
VEHICLE DENSITY	3.13E+02	1.86E+02	1.86E+02		
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06		
ZONE	URBAN	SUBURBAN	RURAL		
ROAD TYPE	NON-FREEWAY	NON-FREEWAY	NON-FREEWAY		
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00		

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OU 7-13/14 Waste Soil

ISOTOPE RELATED DATA

NUCLIDE	CURIES PER PKG	RELEASE GROUP	RESUSPENSION FACTOR	50YR INHALATION (REM/CI) EFFECTIVE
<u>TRU_S</u>				
AC225	7.14E-09	OTHER	1.12E+00	1.00E+07
AC227	1.62E-09	OTHER	5.36E+00	6.70E+09
AC228	6.90E-06	OTHER	1.00E+00	2.90E+05
AM241	3.16E+00	OTHER	5.55E+00	5.90E+08
AM243	2.27E-03	OTHER	5.56E+00	5.90E+08
AT217	7.14E-09	OTHER	1.00E+00	3.30E-01
BI210	8.97E-05	OTHER	1.06E+00	1.90E+05
BI211	1.55E-09	OTHER	1.00E+00	5.70E+02
BI212	6.15E-05	OTHER	1.00E+00	2.10E+04
BI214	1.02E-03	OTHER	1.00E+00	6.30E+03
C14ORG	8.48E-03	OTHER	5.56E+00	2.10E+03
CM244	7.93E-01	OTHER	5.32E+00	3.10E+08
CO60	8.11E-03	OTHER	4.83E+00	2.80E+05
CS137	9.92E-03	OTHER	5.41E+00	3.20E+04
FR221	7.14E-09	OTHER	1.00E+00	4.00E+03
I129	2.68E-06	OTHER	5.57E+00	1.70E+05
NB94	1.70E-02	OTHER	5.57E+00	6.00E+05
NP237	4.79E-05	OTHER	5.57E+00	5.60E+08
NP239	2.27E-03	OTHER	1.03E+00	2.20E+03
PA231	2.06E-08	OTHER	5.57E+00	1.30E+09
PA233	4.77E-05	OTHER	1.31E+00	8.60E+03
PA234	3.18E-06	OTHER	1.00E+00	7.40E+02
PA234M	1.99E-03	OTHER	1.00E+00	2.00E+00
PB209	7.14E-09	OTHER	1.02E+00	9.00E+01
PB210	9.03E-05	OTHER	5.36E+00	1.30E+07
PB211	1.55E-09	OTHER	1.00E+00	8.00E+03
PB212	6.15E-05	OTHER	1.01E+00	1.80E+05
PB214	1.02E-03	OTHER	1.00E+00	6.70E+03
PO210	7.37E-05	OTHER	2.25E+00	8.10E+06
PO212	3.94E-05	OTHER	1.00E+00	1.80E-06
PO213	6.98E-09	OTHER	1.00E+00	2.40E-05
PO214	1.02E-03	OTHER	1.00E+00	8.70E-04
PO215	1.55E-09	OTHER	1.00E+00	1.60E-02
PO216	6.15E-05	OTHER	1.00E+00	1.40E+00
PO218	1.02E-03	OTHER	1.00E+00	1.60E+03
PU238	2.83E-01	OTHER	5.51E+00	5.30E+08
PU239	1.10E+00	OTHER	5.57E+00	5.70E+08
PU240	2.90E-01	OTHER	5.56E+00	5.70E+08
PU241	1.43E+01	OTHER	5.26E+00	9.90E+06
PU242	2.80E-04	OTHER	5.57E+00	5.30E+08
RA223	1.55E-09	OTHER	1.14E+00	7.50E+06
RA224	6.15E-05	OTHER	1.05E+00	2.90E+06
RA225	7.23E-09	OTHER	1.18E+00	7.50E+06
RA226	1.02E-03	OTHER	5.56E+00	7.90E+06
RA228	6.90E-06	OTHER	4.88E+00	4.20E+06
SR90	7.14E+00	OTHER	5.41E+00	2.40E+06
TC99	1.03E-03	OTHER	5.57E+00	1.40E+04
TH227	1.55E-09	OTHER	1.22E+00	1.60E+07
TH228	6.12E-05	OTHER	3.99E+00	3.10E+08
TH229	7.37E-09	OTHER	5.56E+00	2.00E+09
TH230	5.62E-07	OTHER	5.57E+00	3.20E+08
TH231	9.40E-05	OTHER	1.01E+00	8.10E+02

TH232	2.27E-05	OTHER	5.55E+00	1.60E+09
TH234	1.99E-03	OTHER	1.28E+00	3.30E+04
TL207	1.54E-09	OTHER	1.00E+00	5.10E+00
TL208	2.21E-05	OTHER	1.00E+00	5.60E+00
TL209	1.54E-10	OTHER	1.00E+00	4.80E+00
U233	2.56E-05	OTHER	5.57E+00	2.40E+08
U234	1.15E-03	OTHER	5.57E+00	1.30E+08
U235	9.40E-05	OTHER	5.57E+00	2.20E+08
U236	4.86E-05	OTHER	5.57E+00	1.20E+08
U238	1.99E-03	OTHER	5.55E+00	2.20E+08

OU 7-13/14 Waste Soil

NUCLIDE	HALF LIFE	GAMMA ENERGY	CLOUD FACTOR	GROUND FACTOR	INGESTION NUCLIDE	NEUTRON neutrons/sec/Ci	EMISSION
TRU_S							
AC225	1.00E+01	1.79E-02	2.15E-03	5.06E-06	AC225ING		N/A
AC227	7.95E+03	2.30E-04	1.99E-05	5.02E-08	AC227ING		N/A
AC228	2.55E-01	9.30E-01	1.53E-01	2.97E-04	AC228ING		N/A
AM241	1.58E+05	3.24E-02	3.03E-03	8.79E-06	Am-241		N/A
AM243	2.70E+06	5.59E-02	8.07E-03	1.71E-05	Am-243		N/A
AT217	3.74E-07	3.08E-04	3.84E-05	9.70E-08	AT217ING		N/A
BI210	5.01E+00	0.00E+00	0.00E+00	3.36E-07	BI210ING		N/A
BI211	1.49E-03	4.66E-02	7.51E-03	1.47E-05	BI211ING		N/A
BI212	4.20E-02	1.85E-01	3.04E-02	5.73E-05	BI212ING		N/A
BI214	1.38E-02	1.46E+00	2.57E-01	3.65E-04	BI214ING		N/A
C14ORG	2.09E+06	0.00E+00	8.29E-07	5.15E-09	NONE		N/A
CM244	6.62E+03	1.70E-03	1.82E-05	2.81E-07	Cm-244		N/A
CO60	1.93E+03	2.50E+00	4.66E-01	7.51E-04	Co-60		N/A
CS137	1.10E+04	5.96E-01	2.86E-05	1.77E-04	Cs-137		N/A
FR221	3.33E-03	3.10E-02	4.95E-03	9.54E-06	FR221ING		N/A
I129	5.73E+09	2.46E-02	1.41E-03	8.25E-06	I-129		N/A
NB94	7.42E+06	1.57E+00	2.85E-01	4.89E-04	Nb-94		N/A
NP237	7.82E+08	3.43E-02	3.81E-03	9.17E-06	Np-237		N/A
NP239	2.36E+00	1.72E-01	2.66E-02	5.22E-05	NP239ING		N/A
PA231	1.20E+07	4.76E-02	4.79E-03	1.30E-05	PA231ING		N/A
PA233	2.70E+01	2.03E-01	3.39E-02	6.24E-05	PA233ING		N/A
PA234	2.79E-01	1.75E+00	3.23E-01	5.89E-04	PA234ING		N/A
PA234M	8.13E-04	1.13E-02	1.89E-03	4.90E-06	PA234MIN		N/A
PB209	1.36E+00	0.00E+00	0.00E+00	9.63E-08	PB209ING		N/A
PB210	8.14E+03	4.81E-03	2.12E-04	7.94E-07	PB210ING		N/A
PB211	2.51E-02	5.03E-02	8.27E-03	1.63E-05	PB211ING		N/A
PB212	4.43E-01	1.48E-01	2.35E-02	4.58E-05	PB212ING		N/A
PB214	1.86E-02	2.48E-01	3.96E-02	7.81E-05	PB214ING		N/A
PO210	1.38E+02	8.50E-06	1.41E-06	2.65E-09	PO210ING		N/A
PO212	3.53E-12	0.00E+00	0.00E+00	0.00E+00	PO212ING		N/A
PO213	4.86E-11	0.00E+00	5.04E-06	0.00E+00	PO213ING		N/A
PO214	1.90E-09	8.33E-05	1.38E-05	2.60E-08	PO214ING		N/A
PO215	2.06E-08	1.76E-04	2.36E-05	5.57E-08	PO215ING		N/A
PO216	1.74E-06	1.69E-05	2.40E-06	5.28E-09	PO216ING		N/A
PO218	2.12E-03	9.12E-06	0.00E+00	2.84E-09	PO218ING		N/A
PU238	3.21E+04	1.81E-03	1.81E-05	2.68E-07	Pu-238		N/A
PU239	8.79E+06	7.96E-04	1.57E-05	1.17E-07	Pu-239		N/A
PU240	2.39E+06	1.73E-03	1.76E-05	2.57E-07	Pu-240		N/A
PU241	5.26E+03	2.54E-06	2.68E-07	6.17E-10	Pu-241		N/A
PU242	1.37E+08	1.44E-03	1.48E-05	2.13E-07	Pu-242		N/A
RA223	1.14E+01	1.33E-01	2.13E-02	4.10E-05	RA223ING		N/A
RA224	3.66E+00	9.89E-03	1.60E-03	3.06E-06	RA224ING		N/A
RA225	1.48E+01	1.37E-02	1.08E-03	4.26E-06	RA225ING		N/A
RA226	5.84E+05	6.74E-03	1.09E-03	2.06E-06	RA226ING		N/A
RA228	2.10E+03	4.14E-09	1.01E-11	0.00E+00	RA228ING		N/A
SR90	1.06E+04	0.00E+00	2.79E-05	9.08E-08	Sr-90		N/A
TC99	7.78E+07	0.00E+00	5.99E-06	2.49E-08	Tc-99		N/A
TH227	1.87E+01	1.06E-01	1.66E-02	3.33E-05	TH227ING		N/A
TH228	6.98E+02	3.30E-03	3.14E-04	7.52E-07	TH228ING		N/A
TH229	2.68E+06	9.54E-02	1.37E-02	2.73E-05	TH229ING		N/A
TH230	2.81E+07	1.55E-03	6.21E-05	2.40E-07	TH230ING		N/A
TH231	1.06E+00	2.55E-02	1.84E-03	5.89E-06	TH231ING		N/A

TH232	5.13E+12	1.33E-03	2.96E-05	1.76E-07	TH232ING	N/A
TH234	2.41E+01	9.34E-03	1.23E-03	2.66E-06	TH234ING	N/A
TL207	3.31E-03	2.21E-03	3.61E-04	1.20E-06	TL207ING	N/A
TL208	2.13E-03	3.36E+00	6.28E-01	9.54E-04	TL208ING	N/A
TL209	1.53E-03	2.03E+00	3.52E-01	6.08E-04	TL209ING	N/A
U233	5.79E+07	1.31E-03	6.03E-05	2.29E-07	U-233	N/A
U234	8.92E+07	1.73E-03	2.43E-05	2.39E-07	U234ING	N/A
U235	2.57E+11	1.54E-01	2.66E-02	4.73E-05	U-235	N/A
U236	8.55E+09	1.57E-03	1.92E-05	2.08E-07	U236ING	N/A
U238	1.63E+12	1.36E-03	1.26E-05	1.76E-07	U-238	N/A

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ISOTOPE RELATED DATA

NUCLIDE	1-YR INHALATION (REM/CI)		
	LUNG	MARROW	THYROID
TRU_S			
AC225	6.60E+07	1.40E+07	0.00E+00
AC227	1.30E+09	3.70E+08	0.00E+00
AC228	4.70E+05	1.30E+05	0.00E+00
AM241	1.20E+08	1.70E+07	0.00E+00
AM243	1.10E+08	1.60E+07	0.00E+00
AT217	2.70E+00	1.60E-02	0.00E+00
BI210	1.60E+06	7.20E+02	0.00E+00
BI211	4.70E+03	5.70E+00	0.00E+00
BI212	1.40E+05	6.10E+02	0.00E+00
BI214	4.90E+04	1.90E+02	0.00E+00
C14ORG	2.10E+03	2.10E+03	0.00E+00
CM244	1.20E+08	1.70E+07	0.00E+00
CO60	7.90E+05	3.80E+04	0.00E+00
CS137	3.10E+04	2.60E+04	0.00E+00
FR221	3.20E+03	2.20E+02	0.00E+00
I129	1.70E+03	4.30E+02	5.77E+06
NB94	0.00E+00	0.00E+00	0.00E+00
NP237	1.00E+08	1.50E+07	0.00E+00
NP239	8.70E+03	3.50E+02	0.00E+00
PA231	2.60E+08	1.40E+07	0.00E+00
PA233	9.00E+02	2.70E+03	0.00E+00
PA234	3.30E+03	1.30E+02	0.00E+00
PA234M	1.60E+01	5.20E-03	0.00E+00
PB209	4.30E+02	2.20E+01	0.00E+00
PB210	1.60E+05	7.40E+05	0.00E+00
PB211	6.60E+04	9.70E+02	0.00E+00
PB212	7.30E+05	1.20E+05	0.00E+00
PB214	5.50E+04	1.00E+03	0.00E+00
PO210	4.80E+07	1.50E+07	0.00E+00
PO212	1.50E-05	5.40E-17	0.00E+00
PO213	2.00E-04	2.40E-09	0.00E+00
PO214	7.20E-03	1.10E-07	0.00E+00
PO215	1.40E-01	5.20E-04	0.00E+00
PO216	1.10E+01	8.40E-02	0.00E+00
PO218	1.30E+04	8.50E+01	0.00E+00
PU238	4.50E+08	1.10E+06	0.00E+00
PU239	4.20E+08	1.10E+06	0.00E+00
PU240	4.20E+08	1.10E+06	0.00E+00
PU241	3.60E+05	1.30E+03	0.00E+00
PU242	4.00E+08	1.00E+06	0.00E+00
RA223	6.10E+07	8.20E+05	0.00E+00
RA224	2.40E+07	4.10E+05	0.00E+00
RA225	6.20E+06	6.00E+05	0.00E+00
RA226	5.90E+07	3.20E+05	0.00E+00
RA228	2.50E+07	1.70E+05	0.00E+00
SR90	4.50E+06	3.80E+03	0.00E+00
TC99	1.00E+05	1.40E+02	0.00E+00
TH227	1.30E+08	8.90E+06	0.00E+00
TH228	1.30E+09	1.20E+08	0.00E+00
TH229	1.40E+09	1.40E+08	0.00E+00
TH230	2.20E+08	1.40E+08	0.00E+00
TH231	3.00E+03	9.10E+01	0.00E+00

TH232	2.00E+08	1.90E+07	0.00E+00
TH234	2.40E+05	1.50E+04	0.00E+00
TL207	3.70E+01	1.00E-01	0.00E+00
TL208	3.60E+01	8.10E-01	0.00E+00
TL209	3.30E+01	5.00E-01	0.00E+00
U233	4.00E+08	6.10E+03	0.00E+00
U234	2.30E+08	2.70E+05	0.00E+00
U235	3.60E+08	1.00E+04	0.00E+00
U236	2.20E+08	2.60E+05	0.00E+00
U238	3.50E+08	6.30E+03	0.00E+00

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RELEASE RELATED DATA

RELEASE FRACTIONS

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 0.00E+00 1.00E-02 1.00E-06 1.00E-05 1.00E-04 1.00E-03 1.00E-02

GROUP SEVER: 8
OTHER 1.00E-01

DEPOSITION VELOCITIES
GROUP M/SEC
OTHER 1.00E-02

ACCIDENT SEVERITY FRACTIONS
FOR HIGHWAY

ZONE SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
RURAL 4.62E-01 3.02E-01 1.76E-01 4.03E-02 1.18E-02 6.47E-03 5.71E-04
SUBURBAN 4.35E-01 2.85E-01 2.21E-01 5.06E-02 6.64E-03 1.74E-03 6.72E-05
URBAN 5.83E-01 3.82E-01 2.78E-02 6.36E-03 7.42E-04 1.46E-04 1.13E-05

ZONE SEVER: 8
RURAL 1.13E-04
SUBURBAN 5.93E-06
URBAN 9.94E-07

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AEROSOLIZED FRACTION OF RELEASED MATERIAL

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01

GROUP SEVER: 8
OTHER 1.00E-01

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RESPIRABLE FRACTION OF AEROSOLS (BELOW 10 MICRONS AED)

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02

GROUP SEVER: 8
OTHER 5.00E-02

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NON-RADIOLOGICAL DATA (FATALITIES/KM)

HIGHWAY

	NORMAL OCCUPATIONAL	NORMAL NON-OCCUPATIONAL	ACCIDENT OCCUPATIONAL	ACCIDENT NON-OCCUPATIONAL
RURAL	0.00E+00	0.00E+00	1.50E-08	5.30E-08
SUBURBAN	0.00E+00	0.00E+00	3.70E-09	1.30E-08
URBAN	0.00E+00	0.00E+00	2.10E-09	7.50E-09

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HEALTH RELATED DATA

EARLY MORBIDITY THRESHOLD VALUE FOR LUNG 5.000E+02 REM
EARLY MORBIDITY THRESHOLD VALUE FOR MARROW/WHOLE BODY 5.000E+01 REM
EARLY MORBIDITY THRESHOLD VALUE FOR THYROID 2.000E+02 REM

EARLY FATALITY PROBABILITIES (EF)

DOSE (REM)	EF MARROW	DOSE (REM)	EF LUNG
680.00	1.00000	1525.00	1.00000
670.00	0.99999	1500.00	0.99999
660.00	0.99998	1475.00	0.99997
650.00	0.99996	1450.00	0.99991
640.00	0.99992	1425.00	0.99974
630.00	0.99983	1400.00	0.99933
620.00	0.99967	1375.00	0.99840
610.00	0.99938	1350.00	0.99653
600.00	0.99889	1325.00	0.99306
590.00	0.99808	1300.00	0.98709
580.00	0.99679	1275.00	0.97755
570.00	0.99482	1250.00	0.96331
560.00	0.99192	1225.00	0.94326
550.00	0.98776	1200.00	0.91656
540.00	0.98199	1175.00	0.88274
530.00	0.97423	1150.00	0.84178
520.00	0.96406	1125.00	0.79420
510.00	0.95111	1100.00	0.74095
500.00	0.93502	1075.00	0.68335
490.00	0.91551	1050.00	0.62293
480.00	0.89237	1025.00	0.56130
470.00	0.86552	1000.00	0.50000
460.00	0.83499	975.00	0.44042
450.00	0.80096	950.00	0.38372
440.00	0.76371	925.00	0.33077
430.00	0.72363	900.00	0.28218
420.00	0.68123	875.00	0.23830
410.00	0.63706	850.00	0.19925
400.00	0.59172	825.00	0.16498
390.00	0.54583	800.00	0.13529
380.00	0.50000	775.00	0.10988
370.00	0.45481	750.00	0.08837
360.00	0.41078	725.00	0.07038
350.00	0.36838	700.00	0.05548
340.00	0.32798	675.00	0.04329
330.00	0.28990	650.00	0.03341
320.00	0.25438	625.00	0.02549
310.00	0.22155	600.00	0.01922
300.00	0.19150	575.00	0.01430
290.00	0.16425	550.00	0.01050
280.00	0.13977	525.00	0.00759
270.00	0.11797	500.00	0.00000
260.00	0.09872		
250.00	0.08188		
240.00	0.06729		

230.00	0.05475
220.00	0.04408
210.00	0.03510
200.00	0.02761
190.00	0.02143
180.00	0.01639
170.00	0.01234
160.00	0.00913
150.00	0.00000

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OU 7-13/14 Waste Soil

DISPERSAL ACCIDENT INPUT

AREADA (M SQ)	CENTER LINE (M)	DILUTION FACTOR*
4.590E+02	3.300E+01	3.420E-03
1.530E+03	6.800E+01	1.720E-03
3.940E+03	1.050E+02	8.580E-04
1.250E+04	2.440E+02	3.420E-04
3.040E+04	3.690E+02	1.720E-04
6.850E+04	5.610E+02	8.580E-05
1.760E+05	1.018E+03	3.420E-05
4.450E+05	1.628E+03	1.720E-05
8.590E+05	2.308E+03	8.580E-06
2.550E+06	4.269E+03	3.420E-06
4.450E+06	5.468E+03	1.720E-06
1.030E+07	1.114E+04	8.580E-07
2.160E+07	1.310E+04	3.420E-07
5.520E+07	2.133E+04	1.720E-07
1.770E+08	4.050E+04	8.580E-08
4.890E+08	6.999E+04	5.420E-08
8.120E+08	8.986E+04	4.300E-08
1.350E+09	1.209E+05	3.420E-08

* DILUTION FACTOR UNITS ARE (CI-SEC/M**3/CI-RELEASED)

BUILDING DOSE FACTOR (BDF) = 5.000E-02
CONTAMINATION CLEAN UP LEVEL (UCI/M**2) (CULVL) = 2.000E-01
BREATHING RATE (M**3/SEC) (BRATE) = 3.300E-04
INTERDICTION THRESHOLD (INTERDICT) = 4.000E+01
EVACUATION TIME (DAYS) (EVACUATION) = 1.000E+00
SURVEY INTERVAL (DAYS) (SURVEY) = 1.000E+01
CAMPAIGN LENGTH (YEARS) (CAMPAIGN) = 1.000E+00
FRACTION OF URBAN AREAS WITH BUILDINGS (UBF) = 9.000E-01
FRACTION OF URBAN AREAS WITH SIDEWALKS (USWF) = 1.000E-01
RATIO OF SIDEWALK PEDESTRIAN DENSITY (RPD) = 6.000E+00
MAXIMUM IN-TRANSIT DOSE DISTANCE (M) (MITDDIST) = 3.000E+01
MAXIMUM IN-TRANSIT DOSE VELOCITY (KM/H) (MITDVEL) = 2.400E+01
IACC VALUE: 1=NON-DISPERSAL, 2=DISPERSAL = 2
REGULATORY CHECK, 1=DO CHECKS, 0=NO CHECKS = 1
BUILDING SHIELDING OPTION (IUOPT) = 2
RURAL SHIELDING FACTOR = 1.000E+00
SUBURBAN SHIELDING FACTOR = 8.700E-01
URBAN SHIELDING FACTOR = 1.800E-02

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INGESTION RELATED DATA

COMIDA INGESTION FILE USED: R5INGEST.BIN

COMIDA FILE HEADER

COMIDA2 25-Aug-00 25-Aug-0 Ver. 1.11a, 1/28/96: avoiding use of UNIT 6 for HP

DOSE CONVERSION FILE USED IN COMIDA

FGRDCF 05/08/95 16:43:45 beta-test version 1.10, minor FORTRAN fixes 5/4/95
Implicit daughter halflives (m) less than 90 and less than 0.100 of parent

NO INGESTION WILL BE CALCULATED FOR THE FOLLOWING ISOTOPES
INGESTION NUCLIDES ARE NOT IN INGESTION FILE

ISOTOPE	INGESTION NUCLIDE
AC225	AC225ING
AC227	AC227ING
AC228	AC228ING
AT217	AT217ING
BI210	BI210ING
BI211	BI211ING
BI212	BI212ING
BI214	BI214ING
C14ORG	NONE
FR221	FR221ING
NP239	NP239ING
PA231	PA231ING
PA233	PA233ING
PA234	PA234ING
PA234M	PA234MIN
PB209	PB209ING
PB210	PB210ING
PB211	PB211ING
PB212	PB212ING
PB214	PB214ING
PO210	PO210ING
PO212	PO212ING
PO213	PO213ING
PO214	PO214ING
PO215	PO215ING
PO216	PO216ING
PO218	PO218ING
RA223	RA223ING
RA224	RA224ING
RA225	RA225ING
RA226	RA226ING
RA228	RA228ING
TH227	TH227ING
TH228	TH228ING
TH229	TH229ING
TH230	TH230ING
TH231	TH231ING
TH232	TH232ING

TH234	TH234ING
TL207	TL207ING
TL208	TL208ING
TL209	TL209ING
U234	U234ING
U236	U236ING

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OU 7-13/14 Waste Soil

BACKYARD FARMER INGESTION DOSE (REM/CI DEPOSITED)

NUCLIDE	EFFECTIVE	THYROID
Am-241	2.846E+06	3.818E+01
Am-243	2.834E+06	1.968E+02
Cm-244	2.534E+06	3.924E+01
Co-60	4.308E+04	1.225E+04
Cs-137	4.870E+05	4.545E+05
I-129	2.779E+06	9.237E+07
Nb-94	3.381E+05	2.155E+04
Np-237	5.485E+06	5.028E+02
Pu-238	3.858E+04	2.301E-01
Pu-239	4.049E+04	2.169E-01
Pu-240	4.049E+04	2.172E-01
Pu-241	3.231E+03	3.837E-02
Pu-242	3.846E+04	2.134E-01
Sr-90	2.541E+05	9.964E+03
Tc-99	1.316E+04	5.396E+04
U-233	4.645E+04	6.821E+02
U-235	4.690E+04	6.379E+02
U-238	4.170E+04	5.976E+02

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SOCIETAL INGESTION DOSE (PERSON-REM/CI DEPOSITED)

NUCLIDE	GONADS	BREAST	LUNGS	RED MAR	BONE	SU	THYROID	REMAIND	EFFECTI
Am-241	9.4E+01	9.1E-03	1.2E-02	5.0E+02	6.3E+03	4.6E-03	2.3E+02	3.4E+02	
Am-243	9.4E+01	4.9E-02	6.8E-02	5.0E+02	6.3E+03	2.4E-02	2.3E+02	3.4E+02	
Cm-244	7.6E+01	5.1E-03	5.1E-03	4.5E+02	5.6E+03	4.8E-03	2.4E+02	3.1E+02	
Co-60	8.2E+00	2.8E+00	2.3E+00	3.4E+00	2.4E+00	2.0E+00	1.3E+01	7.1E+00	
Cs-137	8.2E+01	7.4E+01	7.5E+01	7.8E+01	7.5E+01	7.5E+01	8.6E+01	8.0E+01	
I-129	8.2E-01	2.0E+00	9.9E-01	1.3E+00	1.3E+00	1.5E+04	1.2E+00	4.5E+02	
Nb-94	6.1E+01	1.2E+01	5.8E+00	2.5E+01	2.6E+01	4.2E+00	1.5E+02	6.5E+01	
Np-237	1.5E+02	9.0E-02	9.5E-02	1.4E+03	1.7E+04	6.9E-02	1.3E+02	7.5E+02	
Pu-238	8.1E-01	6.2E-05	3.0E-05	4.4E+00	5.5E+01	2.8E-05	7.5E+00	4.6E+00	
Pu-239	9.2E-01	4.2E-05	2.7E-05	4.9E+00	6.1E+01	2.6E-05	7.4E+00	4.9E+00	
Pu-240	9.2E-01	6.0E-05	2.9E-05	4.9E+00	6.1E+01	2.6E-05	7.4E+00	4.9E+00	
Pu-241	1.4E-01	1.3E-05	1.7E-05	7.7E-01	9.6E+00	6.5E-06	3.7E-01	5.3E-01	
Pu-242	8.7E-01	8.8E-05	3.2E-05	4.7E+00	5.8E+01	2.6E-05	7.0E+00	4.6E+00	
Sr-90	1.8E+00	1.8E+00	1.8E+00	2.3E+02	4.9E+02	1.8E+00	7.3E+00	4.5E+01	
Tc-99	4.1E-01	4.1E-01	4.1E-01	4.1E-01	4.1E-01	1.1E+01	6.9E+00	2.7E+00	
U-233	9.4E-02	9.2E-02	9.2E-02	2.6E+00	4.0E+01	9.2E-02	1.6E+01	6.2E+00	
U-235	2.9E-01	1.1E-01	8.8E-02	2.4E+00	3.7E+01	8.6E-02	1.6E+01	6.3E+00	
U-238	8.9E-02	8.2E-02	8.1E-02	2.4E+00	3.5E+01	8.0E-02	1.4E+01	5.6E+00	

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NON-RADIOLOGICAL RISK (FATALITIES)

	NORMAL OCCUPATIONAL	NORMAL NON-OCCUPATIONAL	ACCIDENT OCCUPATIONAL	ACCIDENT NON-OCCUPATIONAL
IDU	0.00E+00	0.00E+00	1.24E-04	4.41E-04
IDS	0.00E+00	0.00E+00	3.27E-03	1.15E-02
IDR	0.00E+00	0.00E+00	1.75E-01	6.18E-01
UTU	0.00E+00	0.00E+00	2.72E-04	9.71E-04
UTS	0.00E+00	0.00E+00	4.31E-03	1.51E-02
UTR	0.00E+00	0.00E+00	1.62E-01	5.74E-01
WYU	0.00E+00	0.00E+00	2.22E-04	7.94E-04
WYS	0.00E+00	0.00E+00	6.68E-03	2.35E-02
WYR	0.00E+00	0.00E+00	4.86E-01	1.72E+00
COU	0.00E+00	0.00E+00	2.35E-03	8.39E-03
COS	0.00E+00	0.00E+00	1.86E-02	6.54E-02
COR	0.00E+00	0.00E+00	3.48E-01	1.23E+00
NMU	0.00E+00	0.00E+00	1.11E-04	3.97E-04
NMS	0.00E+00	0.00E+00	2.50E-03	8.80E-03
NMR	0.00E+00	0.00E+00	2.87E-01	1.02E+00
NMULOC	0.00E+00	0.00E+00	1.85E-04	6.62E-04
NMSLoc	0.00E+00	0.00E+00	5.53E-03	1.94E-02
NMRLoc	0.00E+00	0.00E+00	3.38E-01	1.20E+00
TOTALS:	0.00E+00	0.00E+00	1.84E+00	6.50E+00

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REGULATORY CHECKS

THE SHIPMENT BY TRUCK IS DESIGNATED AS EXCLUSIVE USE
BUT IS NOT REQUIRED TO BE SO DESIGNATED BY REGULATIONS

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CALCULATIONAL INFORMATION

FOR TRUCK AREAS WITH TOTAL CONTAMINATION RATIO GREATER THAN 40.000
(THE AREAS MARKED WITH AN 'X' ARE INTERDICTED AND HAVE
NO 50 YEAR GROUNDSHINE DOSE AND NO INGESTION DOSE.)

AREA/SEVERITY	1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	X
2	-	-	-	-	-	-	-	X
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-

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OU 7-13/14 Waste Soil

DILUTION FACTORS
CHI VALUES AFTER DEPLETION (CI-SEC/M**3/CI-RELEASED)

AREA	OTHER
4.59E+02	3.42E-03
1.53E+03	1.72E-03
3.94E+03	8.34E-04
1.25E+04	3.23E-04
3.04E+04	1.55E-04
6.85E+04	7.38E-05
1.76E+05	2.80E-05
4.45E+05	1.33E-05
8.59E+05	6.16E-06
2.55E+06	2.33E-06
4.45E+06	1.06E-06
1.03E+07	5.04E-07
2.16E+07	1.86E-07
5.52E+07	8.77E-08
1.77E+08	4.01E-08
4.89E+08	2.14E-08
8.12E+08	1.31E-08
1.35E+09	8.54E-09

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OU 7-13/14 Waste Soil

VEHICLE TRUCK

1-YEAR DOSE TO LUNG, INHALATION PATHWAY
 BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	1.38E-01	1.38E-05	1.38E-04	1.38E-03	1.38E-02	1.38E-01
6.80E+01	0.00E+00	6.94E-02	6.94E-06	6.94E-05	6.94E-04	6.94E-03	6.94E-02
1.05E+02	0.00E+00	3.37E-02	3.37E-06	3.37E-05	3.37E-04	3.37E-03	3.37E-02
2.44E+02	0.00E+00	1.30E-02	1.30E-06	1.30E-05	1.30E-04	1.30E-03	1.30E-02
3.69E+02	0.00E+00	6.25E-03	6.25E-07	6.25E-06	6.25E-05	6.25E-04	6.25E-03
5.61E+02	0.00E+00	2.98E-03	2.98E-07	2.98E-06	2.98E-05	2.98E-04	2.98E-03
1.02E+03	0.00E+00	1.13E-03	1.13E-07	1.13E-06	1.13E-05	1.13E-04	1.13E-03
1.63E+03	0.00E+00	5.35E-04	5.35E-08	5.35E-07	5.35E-06	5.35E-05	5.35E-04
2.31E+03	0.00E+00	2.49E-04	2.49E-08	2.49E-07	2.49E-06	2.49E-05	2.49E-04
4.27E+03	0.00E+00	9.41E-05	9.41E-09	9.41E-08	9.41E-07	9.41E-06	9.41E-05
5.47E+03	0.00E+00	4.29E-05	4.29E-09	4.29E-08	4.29E-07	4.29E-06	4.29E-05
1.11E+04	0.00E+00	2.03E-05	2.03E-09	2.03E-08	2.03E-07	2.03E-06	2.03E-05
1.31E+04	0.00E+00	7.52E-06	7.52E-10	7.52E-09	7.52E-08	7.52E-07	7.52E-06
2.13E+04	0.00E+00	3.55E-06	3.55E-10	3.55E-09	3.55E-08	3.55E-07	3.55E-06
4.05E+04	0.00E+00	1.62E-06	1.62E-10	1.62E-09	1.62E-08	1.62E-07	1.62E-06
7.00E+04	0.00E+00	8.65E-07	8.65E-11	8.65E-10	8.65E-09	8.65E-08	8.65E-07
8.99E+04	0.00E+00	5.28E-07	5.28E-11	5.28E-10	5.28E-09	5.28E-08	5.28E-07
1.21E+05	0.00E+00	3.45E-07	3.45E-11	3.45E-10	3.45E-09	3.45E-08	3.45E-07

CNTR LINE	SEVER: 8
3.30E+01	1.38E+00
6.80E+01	6.94E-01
1.05E+02	3.37E-01
2.44E+02	1.30E-01
3.69E+02	6.25E-02
5.61E+02	2.98E-02
1.02E+03	1.13E-02
1.63E+03	5.35E-03
2.31E+03	2.49E-03
4.27E+03	9.41E-04
5.47E+03	4.29E-04
1.11E+04	2.03E-04
1.31E+04	7.52E-05
2.13E+04	3.55E-05
4.05E+04	1.62E-05
7.00E+04	8.65E-06
8.99E+04	5.28E-06
1.21E+05	3.45E-06

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1-YEAR DOSE TO MARROW/WHOLE BODY, INHALATION PATHWAY
 BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	7.80E-03	7.80E-07	7.80E-06	7.80E-05	7.80E-04	7.80E-03
6.80E+01	0.00E+00	3.92E-03	3.92E-07	3.92E-06	3.92E-05	3.92E-04	3.92E-03
1.05E+02	0.00E+00	1.90E-03	1.90E-07	1.90E-06	1.90E-05	1.90E-04	1.90E-03
2.44E+02	0.00E+00	7.36E-04	7.36E-08	7.36E-07	7.36E-06	7.36E-05	7.36E-04
3.69E+02	0.00E+00	3.53E-04	3.53E-08	3.53E-07	3.53E-06	3.53E-05	3.53E-04
5.61E+02	0.00E+00	1.68E-04	1.68E-08	1.68E-07	1.68E-06	1.68E-05	1.68E-04
1.02E+03	0.00E+00	6.39E-05	6.39E-09	6.39E-08	6.39E-07	6.39E-06	6.39E-05
1.63E+03	0.00E+00	3.02E-05	3.02E-09	3.02E-08	3.02E-07	3.02E-06	3.02E-05
2.31E+03	0.00E+00	1.41E-05	1.41E-09	1.41E-08	1.41E-07	1.41E-06	1.41E-05
4.27E+03	0.00E+00	5.31E-06	5.31E-10	5.31E-09	5.31E-08	5.31E-07	5.31E-06
5.47E+03	0.00E+00	2.42E-06	2.42E-10	2.42E-09	2.42E-08	2.42E-07	2.42E-06
1.11E+04	0.00E+00	1.15E-06	1.15E-10	1.15E-09	1.15E-08	1.15E-07	1.15E-06
1.31E+04	0.00E+00	4.25E-07	4.25E-11	4.25E-10	4.25E-09	4.25E-08	4.25E-07
2.13E+04	0.00E+00	2.00E-07	2.00E-11	2.00E-10	2.00E-09	2.00E-08	2.00E-07
4.05E+04	0.00E+00	9.15E-08	9.15E-12	9.15E-11	9.15E-10	9.15E-09	9.15E-08
7.00E+04	0.00E+00	4.88E-08	4.88E-12	4.88E-11	4.88E-10	4.88E-09	4.88E-08
8.99E+04	0.00E+00	2.98E-08	2.98E-12	2.98E-11	2.98E-10	2.98E-09	2.98E-08
1.21E+05	0.00E+00	1.95E-08	1.95E-12	1.95E-11	1.95E-10	1.95E-09	1.95E-08
 CNTR LINE SEVER: 8							
3.30E+01	7.80E-02						
6.80E+01	3.92E-02						
1.05E+02	1.90E-02						
2.44E+02	7.36E-03						
3.69E+02	3.53E-03						
5.61E+02	1.68E-03						
1.02E+03	6.39E-04						
1.63E+03	3.02E-04						
2.31E+03	1.41E-04						
4.27E+03	5.31E-05						
5.47E+03	2.42E-05						
1.11E+04	1.15E-05						
1.31E+04	4.25E-06						
2.13E+04	2.00E-06						
4.05E+04	9.15E-07						
7.00E+04	4.88E-07						
8.99E+04	2.98E-07						
1.21E+05	1.95E-07						

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OU 7-13/14 Waste Soil

1-YEAR DOSE TO THYROID, INHALATION PATHWAY
 BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	1.75E-09	1.75E-13	1.75E-12	1.75E-11	1.75E-10	1.75E-09
6.80E+01	0.00E+00	8.76E-10	8.76E-14	8.76E-13	8.76E-12	8.76E-11	8.76E-10
1.05E+02	0.00E+00	4.26E-10	4.26E-14	4.26E-13	4.26E-12	4.26E-11	4.26E-10
2.44E+02	0.00E+00	1.65E-10	1.65E-14	1.65E-13	1.65E-12	1.65E-11	1.65E-10
3.69E+02	0.00E+00	7.90E-11	7.90E-15	7.90E-14	7.90E-13	7.90E-12	7.90E-11
5.61E+02	0.00E+00	3.76E-11	3.76E-15	3.76E-14	3.76E-13	3.76E-12	3.76E-11
1.02E+03	0.00E+00	1.43E-11	1.43E-15	1.43E-14	1.43E-13	1.43E-12	1.43E-11
1.63E+03	0.00E+00	6.76E-12	6.76E-16	6.76E-15	6.76E-14	6.76E-13	6.76E-12
2.31E+03	0.00E+00	3.15E-12	3.15E-16	3.15E-15	3.15E-14	3.15E-13	3.15E-12
4.27E+03	0.00E+00	1.19E-12	1.19E-16	1.19E-15	1.19E-14	1.19E-13	1.19E-12
5.47E+03	0.00E+00	5.41E-13	5.41E-17	5.41E-16	5.41E-15	5.41E-14	5.41E-13
1.11E+04	0.00E+00	2.57E-13	2.57E-17	2.57E-16	2.57E-15	2.57E-14	2.57E-13
1.31E+04	0.00E+00	9.50E-14	9.50E-18	9.50E-17	9.50E-16	9.50E-15	9.50E-14
2.13E+04	0.00E+00	4.48E-14	4.48E-18	4.48E-17	4.48E-16	4.48E-15	4.48E-14
4.05E+04	0.00E+00	2.05E-14	2.05E-18	2.05E-17	2.05E-16	2.05E-15	2.05E-14
7.00E+04	0.00E+00	1.09E-14	1.09E-18	1.09E-17	1.09E-16	1.09E-15	1.09E-14
8.99E+04	0.00E+00	6.66E-15	6.66E-19	6.66E-18	6.66E-17	6.66E-16	6.66E-15
1.21E+05	0.00E+00	4.36E-15	4.36E-19	4.36E-18	4.36E-17	4.36E-16	4.36E-15

CNTR LINE	SEVER: 8
3.30E+01	1.75E-08
6.80E+01	8.76E-09
1.05E+02	4.26E-09
2.44E+02	1.65E-09
3.69E+02	7.90E-10
5.61E+02	3.76E-10
1.02E+03	1.43E-10
1.63E+03	6.76E-11
2.31E+03	3.15E-11
4.27E+03	1.19E-11
5.47E+03	5.41E-12
1.11E+04	2.57E-12
1.31E+04	9.50E-13
2.13E+04	4.48E-13
4.05E+04	2.05E-13
7.00E+04	1.09E-13
8.99E+04	6.66E-14
1.21E+05	4.36E-14

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OU 7-13/14 Waste Soil

VEHICLE TRUCK

GROUND SURFACE CONTAMINATION TABLE (MICRO CI/M**2)
BEFORE CLEANUP

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	1.86E+00	1.86E-04	1.86E-03	1.86E-02	1.86E-01	1.86E+00
6.80E+01	0.00E+00	9.32E-01	9.32E-05	9.32E-04	9.32E-03	9.32E-02	9.32E-01
1.05E+02	0.00E+00	4.53E-01	4.53E-05	4.53E-04	4.53E-03	4.53E-02	4.53E-01
2.44E+02	0.00E+00	1.75E-01	1.75E-05	1.75E-04	1.75E-03	1.75E-02	1.75E-01
3.69E+02	0.00E+00	8.40E-02	8.40E-06	8.40E-05	8.40E-04	8.40E-03	8.40E-02
5.61E+02	0.00E+00	4.00E-02	4.00E-06	4.00E-05	4.00E-04	4.00E-03	4.00E-02
1.02E+03	0.00E+00	1.52E-02	1.52E-06	1.52E-05	1.52E-04	1.52E-03	1.52E-02
1.63E+03	0.00E+00	7.19E-03	7.19E-07	7.19E-06	7.19E-05	7.19E-04	7.19E-03
2.31E+03	0.00E+00	3.34E-03	3.34E-07	3.34E-06	3.34E-05	3.34E-04	3.34E-03
4.27E+03	0.00E+00	1.26E-03	1.26E-07	1.26E-06	1.26E-05	1.26E-04	1.26E-03
5.47E+03	0.00E+00	5.76E-04	5.76E-08	5.76E-07	5.76E-06	5.76E-05	5.76E-04
1.11E+04	0.00E+00	2.73E-04	2.73E-08	2.73E-07	2.73E-06	2.73E-05	2.73E-04
1.31E+04	0.00E+00	1.01E-04	1.01E-08	1.01E-07	1.01E-06	1.01E-05	1.01E-04
2.13E+04	0.00E+00	4.76E-05	4.76E-09	4.76E-08	4.76E-07	4.76E-06	4.76E-05
4.05E+04	0.00E+00	2.17E-05	2.17E-09	2.17E-08	2.17E-07	2.17E-06	2.17E-05
7.00E+04	0.00E+00	1.16E-05	1.16E-09	1.16E-08	1.16E-07	1.16E-06	1.16E-05
8.99E+04	0.00E+00	7.08E-06	7.08E-10	7.08E-09	7.08E-08	7.08E-07	7.08E-06
1.21E+05	0.00E+00	4.63E-06	4.63E-10	4.63E-09	4.63E-08	4.63E-07	4.63E-06
CNTR LINE	SEVER: 8						
3.30E+01	1.86E+01						
6.80E+01	9.32E+00						
1.05E+02	4.53E+00						
2.44E+02	1.75E+00						
3.69E+02	8.40E-01						
5.61E+02	4.00E-01						
1.02E+03	1.52E-01						
1.63E+03	7.19E-02						
2.31E+03	3.34E-02						
4.27E+03	1.26E-02						
5.47E+03	5.76E-03						
1.11E+04	2.73E-03						
1.31E+04	1.01E-03						
2.13E+04	4.76E-04						
4.05E+04	2.17E-04						
7.00E+04	1.16E-04						
8.99E+04	7.08E-05						
1.21E+05	4.63E-05						

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OU 7-13/14 Waste Soil

VEHICLE TRUCK

MAXIMUM INDIVIDUAL CONSEQUENCE (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING EVACUATION

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	1.46E-01	1.46E-05	1.46E-04	1.46E-03	1.46E-02	1.46E-01
6.80E+01	0.00E+00	7.33E-02	7.33E-06	7.33E-05	7.33E-04	7.33E-03	7.33E-02
1.05E+02	0.00E+00	3.56E-02	3.56E-06	3.56E-05	3.56E-04	3.56E-03	3.56E-02
2.44E+02	0.00E+00	1.38E-02	1.38E-06	1.38E-05	1.38E-04	1.38E-03	1.38E-02
3.69E+02	0.00E+00	6.61E-03	6.61E-07	6.61E-06	6.61E-05	6.61E-04	6.61E-03
5.61E+02	0.00E+00	3.15E-03	3.15E-07	3.15E-06	3.15E-05	3.15E-04	3.15E-03
1.02E+03	0.00E+00	1.20E-03	1.20E-07	1.20E-06	1.20E-05	1.20E-04	1.20E-03
1.63E+03	0.00E+00	5.66E-04	5.66E-08	5.66E-07	5.66E-06	5.66E-05	5.66E-04
2.31E+03	0.00E+00	2.63E-04	2.63E-08	2.63E-07	2.63E-06	2.63E-05	2.63E-04
4.27E+03	0.00E+00	9.94E-05	9.94E-09	9.94E-08	9.94E-07	9.94E-06	9.94E-05
5.47E+03	0.00E+00	4.53E-05	4.53E-09	4.53E-08	4.53E-07	4.53E-06	4.53E-05
1.11E+04	0.00E+00	2.15E-05	2.15E-09	2.15E-08	2.15E-07	2.15E-06	2.15E-05
1.31E+04	0.00E+00	7.95E-06	7.95E-10	7.95E-09	7.95E-08	7.95E-07	7.95E-06
2.13E+04	0.00E+00	3.75E-06	3.75E-10	3.75E-09	3.75E-08	3.75E-07	3.75E-06
4.05E+04	0.00E+00	1.71E-06	1.71E-10	1.71E-09	1.71E-08	1.71E-07	1.71E-06
7.00E+04	0.00E+00	9.14E-07	9.14E-11	9.14E-10	9.14E-09	9.14E-08	9.14E-07
8.99E+04	0.00E+00	5.57E-07	5.57E-11	5.57E-10	5.57E-09	5.57E-08	5.57E-07
1.21E+05	0.00E+00	3.65E-07	3.65E-11	3.65E-10	3.65E-09	3.65E-08	3.65E-07

CNTR LINE	SEVER: 8
3.30E+01	1.46E+00
6.80E+01	7.33E-01
1.05E+02	3.56E-01
2.44E+02	1.38E-01
3.69E+02	6.61E-02
5.61E+02	3.15E-02
1.02E+03	1.20E-02
1.63E+03	5.66E-03
2.31E+03	2.63E-03
4.27E+03	9.94E-04
5.47E+03	4.53E-04
1.11E+04	2.15E-04
1.31E+04	7.95E-05
2.13E+04	3.75E-05
4.05E+04	1.71E-05
7.00E+04	9.14E-06
8.99E+04	5.57E-06
1.21E+05	3.65E-06

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OU 7-13/14 Waste Soil

VEHICLE TRUCK

BACKYARD FARMER DOSE - EFFECTIVE
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	8.86E-01	8.86E-05	8.86E-04	8.86E-03	8.86E-02	8.86E-01
6.80E+01	0.00E+00	4.45E-01	4.45E-05	4.45E-04	4.45E-03	4.45E-02	4.45E-01
1.05E+02	0.00E+00	2.16E-01	2.16E-05	2.16E-04	2.16E-03	2.16E-02	2.16E-01
2.44E+02	0.00E+00	8.36E-02	8.36E-06	8.36E-05	8.36E-04	8.36E-03	8.36E-02
3.69E+02	0.00E+00	4.01E-02	4.01E-06	4.01E-05	4.01E-04	4.01E-03	4.01E-02
5.61E+02	0.00E+00	1.91E-02	1.91E-06	1.91E-05	1.91E-04	1.91E-03	1.91E-02
1.02E+03	0.00E+00	7.25E-03	7.25E-07	7.25E-06	7.25E-05	7.25E-04	7.25E-03
1.63E+03	0.00E+00	3.43E-03	3.43E-07	3.43E-06	3.43E-05	3.43E-04	3.43E-03
2.31E+03	0.00E+00	1.60E-03	1.60E-07	1.60E-06	1.60E-05	1.60E-04	1.60E-03
4.27E+03	0.00E+00	6.03E-04	6.03E-08	6.03E-07	6.03E-06	6.03E-05	6.03E-04
5.47E+03	0.00E+00	2.75E-04	2.75E-08	2.75E-07	2.75E-06	2.75E-05	2.75E-04
1.11E+04	0.00E+00	1.30E-04	1.30E-08	1.30E-07	1.30E-06	1.30E-05	1.30E-04
1.31E+04	0.00E+00	4.82E-05	4.82E-09	4.82E-08	4.82E-07	4.82E-06	4.82E-05
2.13E+04	0.00E+00	2.27E-05	2.27E-09	2.27E-08	2.27E-07	2.27E-06	2.27E-05
4.05E+04	0.00E+00	1.04E-05	1.04E-09	1.04E-08	1.04E-07	1.04E-06	1.04E-05
7.00E+04	0.00E+00	5.54E-06	5.54E-10	5.54E-09	5.54E-08	5.54E-07	5.54E-06
8.99E+04	0.00E+00	3.38E-06	3.38E-10	3.38E-09	3.38E-08	3.38E-07	3.38E-06
1.21E+05	0.00E+00	2.21E-06	2.21E-10	2.21E-09	2.21E-08	2.21E-07	2.21E-06
CNTR LINE	SEVER: 8						
3.30E+01	8.86E+00						
6.80E+01	4.45E+00						
1.05E+02	2.16E+00						
2.44E+02	8.36E-01						
3.69E+02	4.01E-01						
5.61E+02	1.91E-01						
1.02E+03	7.25E-02						
1.63E+03	3.43E-02						
2.31E+03	1.60E-02						
4.27E+03	6.03E-03						
5.47E+03	2.75E-03						
1.11E+04	1.30E-03						
1.31E+04	4.82E-04						
2.13E+04	2.27E-04						
4.05E+04	1.04E-04						
7.00E+04	5.54E-05						
8.99E+04	3.38E-05						
1.21E+05	2.21E-05						

BACKYARD FARMER DOSE - THYROID
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	5.24E-03	5.24E-07	5.24E-06	5.24E-05	5.24E-04	5.24E-03
6.80E+01	0.00E+00	2.63E-03	2.63E-07	2.63E-06	2.63E-05	2.63E-04	2.63E-03
1.05E+02	0.00E+00	1.28E-03	1.28E-07	1.28E-06	1.28E-05	1.28E-04	1.28E-03
2.44E+02	0.00E+00	4.94E-04	4.94E-08	4.94E-07	4.94E-06	4.94E-05	4.94E-04
3.69E+02	0.00E+00	2.37E-04	2.37E-08	2.37E-07	2.37E-06	2.37E-05	2.37E-04
5.61E+02	0.00E+00	1.13E-04	1.13E-08	1.13E-07	1.13E-06	1.13E-05	1.13E-04
1.02E+03	0.00E+00	4.29E-05	4.29E-09	4.29E-08	4.29E-07	4.29E-06	4.29E-05
1.63E+03	0.00E+00	2.03E-05	2.03E-09	2.03E-08	2.03E-07	2.03E-06	2.03E-05

2.31E+03	0.00E+00	9.44E-06	9.44E-10	9.44E-09	9.44E-08	9.44E-07	9.44E-06
4.27E+03	0.00E+00	3.57E-06	3.57E-10	3.57E-09	3.57E-08	3.57E-07	3.57E-06
5.47E+03	0.00E+00	1.63E-06	1.63E-10	1.63E-09	1.63E-08	1.63E-07	1.63E-06
1.11E+04	0.00E+00	7.71E-07	7.71E-11	7.71E-10	7.71E-09	7.71E-08	7.71E-07
1.31E+04	0.00E+00	2.85E-07	2.85E-11	2.85E-10	2.85E-09	2.85E-08	2.85E-07
2.13E+04	0.00E+00	1.34E-07	1.34E-11	1.34E-10	1.34E-09	1.34E-08	1.34E-07
4.05E+04	0.00E+00	6.14E-08	6.14E-12	6.14E-11	6.14E-10	6.14E-09	6.14E-08
7.00E+04	0.00E+00	3.28E-08	3.28E-12	3.28E-11	3.28E-10	3.28E-09	3.28E-08
8.99E+04	0.00E+00	2.00E-08	2.00E-12	2.00E-11	2.00E-10	2.00E-09	2.00E-08
1.21E+05	0.00E+00	1.31E-08	1.31E-12	1.31E-11	1.31E-10	1.31E-09	1.31E-08

CNTR	LINE	SEVER:
3.30E+01		8
6.80E+01		5.24E-02
1.05E+02		2.63E-02
2.44E+02		1.28E-02
3.69E+02		4.94E-03
5.61E+02		2.37E-03
1.02E+03		1.13E-03
1.63E+03		4.29E-04
2.31E+03		2.03E-04
4.27E+03		9.44E-05
5.47E+03		3.57E-05
1.11E+04		1.63E-05
1.31E+04		7.71E-06
2.13E+04		2.85E-06
4.05E+04		1.34E-06
7.00E+04		6.14E-07
8.99E+04		3.28E-07
1.21E+05		2.00E-07
		1.31E-07

RUN DATE: [9-Mar-02 AT 07:45:11]

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OU 7-13/14 Waste Soil

INCIDENT-FREE SUMMARY

***** * **** *****

IN-TRANSIT POPULATION EXPOSURE IN PERSON-REM

	PASSENGER	CREW	OFF LINK	ON LINK	TOTALS
IDU	0.00E+00	2.87E-01	9.41E-03	2.81E-01	5.78E-01
IDS	0.00E+00	3.46E+00	9.98E-01	1.51E+00	5.96E+00
IDR	0.00E+00	3.52E+01	1.96E-01	1.17E+01	4.71E+01
UTU	0.00E+00	6.32E-01	2.65E-02	1.33E+00	1.99E+00
UTS	0.00E+00	4.57E+00	1.45E+00	1.14E+00	7.16E+00
UTR	0.00E+00	3.27E+01	2.53E-01	6.25E+00	3.92E+01
WYU	0.00E+00	5.17E-01	2.42E-02	1.39E-01	6.81E-01
WYS	0.00E+00	7.08E+00	2.43E+00	1.11E+00	1.06E+01
WYR	0.00E+00	9.79E+01	2.02E-01	1.17E+01	1.10E+02
COU	0.00E+00	5.46E+00	2.09E-01	1.01E+01	1.58E+01
COS	0.00E+00	1.97E+01	7.33E+00	6.53E+00	3.36E+01
COR	0.00E+00	7.02E+01	3.91E-01	1.77E+01	8.83E+01
NMU	0.00E+00	2.59E-01	8.47E-03	3.13E-01	5.80E-01
NMS	0.00E+00	2.65E+00	9.06E-01	8.32E-01	4.39E+00
NMR	0.00E+00	5.79E+01	1.37E-01	1.39E+01	7.19E+01
NMULoc	0.00E+00	1.17E+00	1.88E+00	2.07E+00	5.12E+00
NMSLoc	0.00E+00	1.19E+01	5.14E+00	7.33E+00	2.43E+01
NMRLoc	0.00E+00	9.81E+01	3.26E-01	3.27E+01	1.31E+02
RURAL	0.00E+00	3.92E+02	1.51E+00	9.40E+01	4.87E+02
SUBURB	0.00E+00	4.93E+01	1.83E+01	1.85E+01	8.60E+01
URBAN	0.00E+00	8.32E+00	2.16E+00	1.42E+01	2.47E+01
TOTALS:	0.00E+00	4.50E+02	2.19E+01	1.27E+02	5.98E+02

MAXIMUM INDIVIDUAL IN-TRANSIT DOSE

TRUCK 3.54E-03 REM

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OU 7-13/14 Waste Soil

STOP EXPOSURE IN PERSON-REM

POINT-SOURCE STOPTRK 2.76E+03

TOTAL: 2.76E+03

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OU 7-13/14 Waste Soil

ACCIDENT SUMMARY

NUMBER OF EXPECTED ACCIDENTS

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	2.49E-02	2.78E-01	3.90E+00	5.47E-02	3.67E-01	3.62E+00	4.48E-02
2	1.63E-02	1.82E-01	2.55E+00	3.59E-02	2.41E-01	2.37E+00	2.93E-02
3	1.19E-03	1.41E-01	1.49E+00	2.61E-03	1.87E-01	1.38E+00	2.13E-03
4	2.71E-04	3.24E-02	3.40E-01	5.97E-04	4.27E-02	3.16E-01	4.88E-04
5	3.17E-05	4.25E-03	9.97E-02	6.96E-05	5.61E-03	9.26E-02	5.70E-05
6	6.23E-06	1.11E-03	5.47E-02	1.37E-05	1.47E-03	5.08E-02	1.12E-05
7	4.82E-07	4.30E-05	4.82E-03	1.06E-06	5.68E-05	4.48E-03	8.68E-07
8	4.24E-08	3.79E-06	9.55E-04	9.33E-08	5.01E-06	8.87E-04	7.63E-08

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	5.70E-01	1.08E+01	4.73E-01	1.59E+00	7.77E+00	2.24E-02	2.13E-01
2	3.73E-01	7.09E+00	3.10E-01	1.04E+00	5.08E+00	1.47E-02	1.40E-01
3	2.89E-01	4.13E+00	2.25E-02	8.06E-01	2.96E+00	1.07E-03	1.08E-01
4	6.63E-02	9.46E-01	5.16E-03	1.85E-01	6.78E-01	2.44E-04	2.48E-02
5	8.70E-03	2.77E-01	6.01E-04	2.42E-02	1.99E-01	2.85E-05	3.26E-03
6	2.28E-03	1.52E-01	1.18E-04	6.35E-03	1.09E-01	5.61E-06	8.54E-04
7	8.80E-05	1.34E-02	9.16E-06	2.45E-04	9.61E-03	4.34E-07	3.30E-05
8	7.77E-06	2.65E-03	8.06E-07	2.16E-05	1.90E-03	3.82E-08	2.91E-06

CATEGORY	NMR	NMULoc	NMSLoc	NMRLoc
1	6.42E+00	3.73E-02	4.71E-01	7.55E+00
2	4.19E+00	2.44E-02	3.09E-01	4.94E+00
3	2.44E+00	1.78E-03	2.39E-01	2.88E+00
4	5.60E-01	4.07E-04	5.48E-02	6.59E-01
5	1.64E-01	4.75E-05	7.20E-03	1.93E-01
6	8.99E-02	9.34E-06	1.89E-03	1.06E-01
7	7.93E-03	7.23E-07	7.28E-05	9.34E-03
8	1.57E-03	6.36E-08	6.43E-06	1.85E-03

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OU 7-13/14 Waste Soil

EARLY FATALITY CONSEQUENCES

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	0.00E+00						
3	0.00E+00						
4	0.00E+00						
5	0.00E+00						
6	0.00E+00						
7	0.00E+00						
8	0.00E+00						

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	0.00E+00						
3	0.00E+00						
4	0.00E+00						
5	0.00E+00						
6	0.00E+00						
7	0.00E+00						
8	0.00E+00						

CATEGORY	NMR	NMULoc	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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OU 7-13/14 Waste Soil

RADIOLOGICAL CONSEQUENCES
50 YEAR POPULATION DOSE IN PERSON-REM

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	4.63E+01	1.31E+01	2.20E-01	5.92E+01	1.44E+01	3.05E-01	6.61E+01
3	4.63E-03	1.31E-03	2.20E-05	5.93E-03	1.44E-03	3.05E-05	6.61E-03
4	4.63E-02	1.31E-02	2.20E-04	5.93E-02	1.44E-02	3.05E-04	6.61E-02
5	4.63E-01	1.31E-01	2.20E-03	5.93E-01	1.44E-01	3.05E-03	6.61E-01
6	4.63E+00	1.31E+00	2.20E-02	5.93E+00	1.44E+00	3.05E-02	6.61E+00
7	4.63E+01	1.31E+01	2.20E-01	5.92E+01	1.44E+01	3.05E-01	6.61E+01
8	1.68E+02	4.75E+01	7.97E-01	2.15E+02	5.24E+01	1.11E+00	2.40E+02

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	1.56E+01	8.14E-02	5.42E+01	1.68E+01	2.20E-01	4.63E+01	1.55E+01
3	1.56E-03	8.14E-06	5.42E-03	1.69E-03	2.20E-05	4.63E-03	1.55E-03
4	1.56E-02	8.14E-05	5.42E-02	1.69E-02	2.20E-04	4.63E-02	1.55E-02
5	1.56E-01	8.14E-04	5.42E-01	1.69E-01	2.20E-03	4.63E-01	1.55E-01
6	1.56E+00	8.14E-03	5.42E+00	1.69E+00	2.20E-02	4.63E+00	1.55E+00
7	1.56E+01	8.14E-02	5.42E+01	1.68E+01	2.20E-01	4.63E+01	1.55E+01
8	5.66E+01	2.95E-01	1.97E+02	6.12E+01	7.97E-01	1.68E+02	5.62E+01

CATEGORY	NMR	NMULOC	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	9.36E-02	4.64E+01	1.61E+01	1.10E-01
3	9.36E-06	4.65E-03	1.61E-03	1.10E-05
4	9.36E-05	4.65E-02	1.61E-02	1.10E-04
5	9.36E-04	4.65E-01	1.61E-01	1.10E-03
6	9.36E-03	4.65E+00	1.61E+00	1.10E-02
7	9.36E-02	4.64E+01	1.61E+01	1.10E-01
8	3.40E-01	1.69E+02	5.84E+01	3.99E-01

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OU 7-13/14 Waste Soil

MAXIMUM RISK FOR INDIVIDUAL IN NEAREST ISOPLETH (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING EVACUATION

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	2.38E-03	2.66E-02	3.72E-01	5.23E-03	3.51E-02	3.46E-01	4.28E-03
3	1.73E-08	2.06E-06	2.17E-05	3.81E-08	2.73E-06	2.02E-05	3.12E-08
4	3.96E-08	4.73E-06	4.97E-05	8.71E-08	6.24E-06	4.62E-05	7.13E-08
5	4.62E-08	6.20E-06	1.46E-04	1.02E-07	8.19E-06	1.35E-04	8.32E-08
6	9.09E-08	1.63E-05	7.98E-04	2.00E-07	2.15E-05	7.41E-04	1.64E-07
7	7.04E-08	6.28E-06	7.04E-04	1.55E-07	8.29E-06	6.54E-04	1.27E-07
8	6.19E-08	5.54E-06	1.39E-03	1.36E-07	7.31E-06	1.29E-03	1.11E-07

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	5.45E-02	1.03E+00	4.52E-02	1.52E-01	7.42E-01	2.14E-03	2.04E-02
3	4.23E-06	6.03E-05	3.29E-07	1.18E-05	4.32E-05	1.56E-08	1.58E-06
4	9.67E-06	1.38E-04	7.53E-07	2.69E-05	9.90E-05	3.56E-08	3.62E-06
5	1.27E-05	4.04E-04	8.78E-07	3.54E-05	2.90E-04	4.16E-08	4.76E-06
6	3.33E-05	2.22E-03	1.73E-06	9.27E-05	1.59E-03	8.18E-08	1.25E-05
7	1.28E-05	1.96E-03	1.34E-06	3.58E-05	1.40E-03	6.33E-08	4.81E-06
8	1.13E-05	3.87E-03	1.18E-06	3.16E-05	2.78E-03	5.57E-08	4.25E-06

CATEGORY	NMR	NMULOC	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	6.12E-01	3.57E-03	4.51E-02	7.21E-01
3	3.57E-05	2.60E-08	3.50E-06	4.20E-05
4	8.17E-05	5.94E-08	8.00E-06	9.62E-05
5	2.39E-04	6.93E-08	1.05E-05	2.82E-04
6	1.31E-03	1.36E-07	2.75E-05	1.54E-03
7	1.16E-03	1.06E-07	1.06E-05	1.36E-03
8	2.29E-03	9.29E-08	9.38E-06	2.70E-03

RADIOLOGICAL CONSEQUENCES IN PERSON REM
50 YEAR SOCIETAL INGESTION DOSE - EFFECTIVE

LINK	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
IDR	0.00E+00						
UTR	0.00E+00						
WYR	0.00E+00						
COR	0.00E+00						
NMR	0.00E+00						
NMRLoc	0.00E+00						
LINK	SEVER: 8						
IDR	0.00E+00						
UTR	0.00E+00						
WYR	0.00E+00						
COR	0.00E+00						
NMR	0.00E+00						
NMRLoc	0.00E+00						

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OU 7-13/14 Waste Soil

EXPECTED VALUES OF POPULATION RISK IN PERSON-REM

	GROUND	INHALED	RESUSPD	CLOUDSH	TOTAL
IDU	4.39E-03	1.36E-01	6.14E-01	4.83E-08	7.55E-01
IDS	1.39E-02	4.30E-01	1.94E+00	1.53E-07	2.39E+00
IDR	3.29E-03	1.02E-01	4.59E-01	3.62E-08	5.64E-01
UTU	1.24E-02	3.82E-01	1.73E+00	1.36E-07	2.12E+00
UTS	2.03E-02	6.26E-01	2.83E+00	2.23E-07	3.48E+00
UTR	4.24E-03	1.31E-01	5.92E-01	4.67E-08	7.27E-01
WYU	1.13E-02	3.49E-01	1.58E+00	1.24E-07	1.94E+00
WYS	3.39E-02	1.05E+00	4.74E+00	3.73E-07	5.82E+00
WYR	3.38E-03	1.05E-01	4.72E-01	3.72E-08	5.80E-01
COU	9.76E-02	3.02E+00	1.37E+01	1.07E-06	1.68E+01
COS	1.02E-01	3.16E+00	1.43E+01	1.12E-06	1.75E+01
COR	6.55E-03	2.03E-01	9.14E-01	7.20E-08	1.12E+00
NMU	3.95E-03	1.22E-01	5.53E-01	4.35E-08	6.79E-01
NMS	1.26E-02	3.91E-01	1.77E+00	1.39E-07	2.17E+00
NMR	2.30E-03	7.12E-02	3.21E-01	2.53E-08	3.95E-01
NMULoc	6.61E-03	2.04E-01	9.25E-01	7.27E-08	1.14E+00
NMSLoc	2.90E-02	8.95E-01	4.05E+00	3.18E-07	4.97E+00
NMRLoc	3.18E-03	9.84E-02	4.44E-01	3.50E-08	5.46E-01
RURAL	2.29E-02	7.10E-01	3.20E+00	2.52E-07	3.93E+00
SUBURB	2.12E-01	6.55E+00	2.96E+01	2.33E-06	3.64E+01
URBAN	1.36E-01	4.21E+00	1.91E+01	1.50E-06	2.34E+01
TOTALS:	3.71E-01	1.15E+01	5.19E+01	4.08E-06	6.37E+01

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SOCIETAL INGESTION RISK - PERSON-REM

LINK	GONADS	EFFECTIVE
IDR	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00

SOCIETAL INGESTION RISK BY ORGAN - PERSON-REM

LINK	BREAST	LUNGS	RED MARR	BONE SUR	THYROID	REMAINDER
IDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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EXPECTED RISK VALUES - OTHER

LINK	EARLY FATALITY	EARLY MORBIDITY
IDU	0.00E+00	0.00E+00
IDS	0.00E+00	0.00E+00
IDR	0.00E+00	0.00E+00
UTU	0.00E+00	0.00E+00
UTS	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00
WYU	0.00E+00	0.00E+00
WYS	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00
COU	0.00E+00	0.00E+00
COS	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00
NMU	0.00E+00	0.00E+00
NMS	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00
NMULoc	0.00E+00	0.00E+00
NMSLoc	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00

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TOTAL EXPOSED POPULATION: INCIDENT-FREE

IDU	3.96E+03	PERSONS
IDS	1.08E+04	PERSONS
IDR	2.40E+03	PERSONS
UTU	1.12E+04	PERSONS
UTS	1.58E+04	PERSONS
UTR	3.10E+03	PERSONS
WYU	1.02E+04	PERSONS
WYS	2.64E+04	PERSONS
WYR	2.47E+03	PERSONS
COU	8.81E+04	PERSONS
COS	7.95E+04	PERSONS
COR	4.78E+03	PERSONS
NMU	3.57E+03	PERSONS
NMS	9.84E+03	PERSONS
NMR	1.68E+03	PERSONS
NMULOC	5.96E+03	PERSONS
NMSLoc	2.25E+04	PERSONS
NMRLoc	2.32E+03	PERSONS

TOTAL 3.05E+05 PERSONS

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OU 7-13/14 Waste Soil

TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

IDU	2.38E+06	PERSONS
IDS	4.34E+05	PERSONS
IDR	7.29E+03	PERSONS
UTU	3.05E+06	PERSONS
UTS	4.79E+05	PERSONS
UTR	1.01E+04	PERSONS
WYU	3.40E+06	PERSONS
WYS	5.17E+05	PERSONS
WYR	2.70E+03	PERSONS
COU	2.79E+06	PERSONS
COS	5.59E+05	PERSONS
COR	7.29E+03	PERSONS
NMU	2.38E+06	PERSONS
NMS	5.14E+05	PERSONS
NMR	3.11E+03	PERSONS
NMULoc	2.39E+06	PERSONS
NMSLoc	5.34E+05	PERSONS
NMRLoc	3.65E+03	PERSONS

EOI
END OF RUN

RADTRAN5 OUTPUT FILE FOR TRU METAL SHIPMENTS

RUN DATE: [9-Mar-02 AT 07:56:00]

PAGE 1

RRRR	AAA	DDDD	TTTTT	RRRR	AAA	N	N	55555
R R	A A	D D	T	R R	A A	NN	N 5	
R R	A A	D D	T	R R	A A	N N	N 5	
RRRR	A A	D D	T	RRRR	A A	N NN	5555	
R R	AAAAA	D D	T	R R	AAAAA	N N	5	
R R	A A	D D	T	R R	A A	N N	5 5	
R R	A A	DDDD	T	R R	A A	N N	5555	

RADTRAN 5.2.5 January 29, 2002

INPUT ECHO

&& Edited Sat Mar 9 07:55:13 2002
 && Truck from INEEL to WIPP, OU 7-13/14 Waste Metal

TITLE OU 7-13/14 Waste Metal

INPUT STANDARD

```

STD: 0 10 18          && DIMEN=NSEV NRAD NAREAS
STD: 1 3 3 0          && PARM=IRNKC IANA ISEN IPSQSB
STD: .TRUE. .FALSE.   && FORM = UNIT, SI-UNITS?
STD: 2.3E12           && NEVAL FOR CF252
STD: 9.25E5 5.77E6 1.27E6 && RPCTHY FOR I125, I129, I131
STD: 0.0 0.0 0.0 0.0 0.0 && TRANSFER GAMMA
STD: 7.42E-3 2.02E-2 6.17E-5 3.17E-8 0.0 && TRANSFER NEUTRON
STD: 30 24            && MITDDIST MITDVEL
STD: 1 2 .0018        && ITRAIN FMINCL DDRWEF
STD: 33 68 105 244 369 && CENTER LINE
STD: 561 1018 1628 2308 4269 && DISTANCES
STD: 5468 11136 13097 21334 40502 && FOR AVERAGE
STD: 69986 89860 120878 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 && US CLOUD
STD: 4.59E+02 1.53E+03 3.94E+03 1.25E+04 3.04E+04 6.85E+04 1.76E+05 4.45E+05
STD: 8.59E+05 2.55E+06 4.45E+06 1.03E+07 2.16E+07 5.52E+07 1.77E+08 4.89E+08
STD: 8.12E+08 1.35E+09 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 && AREADA
STD: 3.42E-03 1.72E-03 8.58E-04 3.42E-04 1.72E-04 8.58E-05 3.42E-05 1.72E-05
STD: 8.58E-06 3.42E-06 1.72E-06 8.58E-07 3.42E-07 1.72E-07 8.58E-08 5.42E-08
STD: 4.30E-08 3.42E-08 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 && DFLEV
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0 && RADIST
STD: 0.5              && SMLPKG
STD: 1.0 0.87 0.018   && SHIELDING FACTORS RR RS RU
STD: 30 30 800         && OFFLINK {FREEWAY}
STD: 27 30 800         && OFFLINK {NON-FREEWAY}
STD: 5 8 800            && OFFLINK {CITY STREETS}
STD: 30 30 800          && OFFLINK {RAILWAY}
STD: 200 200 1000       && OFFLINK {WATERWAY}
STD: 15 3 3 3 4          && ONLINK {FWAY NONFWY STREET RAIL ADJ}
STD: 6.0 4 40.0          && RPD FNOATT INTERDICT
STD: 0.05 0.2 3.3E-4    && BDF CULVL BRATE
STD: 0.9 0.1              && UBF USWF
STD: 1.0 10.0 1.0        && EVACUATION SURVEY CAMPAIGN

```

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OU 7-13/14 Waste Metal

STD: 0.0 0.0 1.5E-8 5.3E-8 && HIGHWAY - RURAL - NONRAD
STD: 0.0 0.0 3.7E-9 1.3E-8 && HIGHWAY - SUBURBAN - NONRAD
STD: 0.0 0.0 2.1E-9 7.5E-9 && HIGHWAY - URBAN - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - R - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - S - NONRAD
STD: 0.0 0.0 1.81E-9 2.64E-8 && GENERAL FREIGHT - U - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - R - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - S - NONRAD
STD: 0.0 0.0 1.27E-7 1.85E-6 && DEDICATED RAIL - U - NONRAD
STD: 0.0 0.0 0.0 0.0 0.0 0.0 && PSPROB
STD: 0.67 0.67 0.42 && TIMENDE NON-DISPERSAL EVAC TIME (LCF&EA
STD: 2 2 1 && FLAGS=IUOPT IACC REGCHECK
STD: 5E-4, 4E-4, 1.3E-4 && LCFCON(1), LCFCON(2), GECON
STD: R5INGEST.BIN && INGESTION FILE

FORM UNIT
DIMEN 8 10 18
PARM 1 3 1 0
SEVERITY
NPOP=1
NMODE=1
4.62E-01 3.02E-01 1.76E-01 4.03E-02 1.18E-02 6.47E-03
5.71E-04 1.13E-04
NPOP=2
NMODE=1
4.35E-01 2.85E-01 2.21E-01 5.06E-02 6.64E-03 1.74E-03
6.72E-05 5.93E-06
NPOP=3
NMODE=1
5.83E-01 3.82E-01 2.78E-02 6.36E-03 7.42E-04 1.46E-04
1.13E-05 9.94E-07

RELEASE
GROUP=OTHER
RFRAC
0.00E+00 1.00E-02 1.00E-06 1.00E-05 1.00E-04 1.00E-03
1.00E-02 1.00E-01
AERSOL
1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01
1.00E-01 1.00E-01
RESP
5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02
5.00E-02 5.00E-02
LOS
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
DEPVEL 0.010000
DEFINE AC225
1.00E+01 1.79E-02 2.15E-03 5.06E-06 1.00E+07 0.00E+00
6.60E+07 1.40E+07

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AC225ING
DEFINE AC227
 7.95E+03 2.30E-04 1.99E-05 5.02E-08 6.70E+09 1.50E+09
 1.30E+09 3.70E+08
AC227ING
DEFINE AC228
 2.55E-01 9.30E-01 1.53E-01 2.97E-04 2.90E+05 0.00E+00
 4.70E+05 1.30E+05
AC228ING
DEFINE AT217
 3.74E-07 3.08E-04 3.84E-05 9.70E-08 3.30E-01 1.60E-02
 2.70E+00 1.60E-02
AT217ING
DEFINE BI210
 5.01E+00 0.00E+00 0.00E+00 3.36E-07 1.90E+05 0.00E+00
 1.60E+06 7.20E+02
BI210ING
DEFINE BI211
 1.49E-03 4.66E-02 7.51E-03 1.47E-05 5.70E+02 1.10E+01
 4.70E+03 5.70E+00
BI211ING
DEFINE BI212
 4.20E-02 1.85E-01 3.04E-02 5.73E-05 2.10E+04 0.00E+00
 1.40E+05 6.10E+02
BI212ING
DEFINE BI214
 1.38E-02 1.46E+00 2.57E-01 3.65E-04 6.30E+03 0.00E+00
 4.90E+04 1.90E+02
BI214ING
DEFINE FR221
 3.33E-03 3.10E-02 4.95E-03 9.54E-06 4.00E+03 2.20E+02
 3.20E+03 2.20E+02
FR221ING
DEFINE NP239
 2.36E+00 1.72E-01 2.66E-02 5.22E-05 2.20E+03 0.00E+00
 8.70E+03 3.50E+02
NP239ING
DEFINE PA231
 1.20E+07 4.76E-02 4.79E-03 1.30E-05 1.30E+09 0.00E+00
 2.60E+08 1.40E+07
PA231ING
DEFINE PA233
 2.70E+01 2.03E-01 3.39E-02 6.24E-05 8.60E+03 0.00E+00
 9.00E+02 2.70E+03
PA233ING
DEFINE PA234
 2.79E-01 1.75E+00 3.23E-01 5.89E-04 7.40E+02 2.30E+02
 3.30E+03 1.30E+02
PA234ING
DEFINE PA234M
 8.13E-04 1.13E-02 1.89E-03 4.90E-06 2.00E+00 2.90E-04
 1.60E+01 5.20E-03
PA234MING

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```
DEFINE PB209
  1.36E+00  0.00E+00  0.00E+00  9.63E-08  9.00E+01  0.00E+00
  4.30E+02  2.20E+01
PB209ING
DEFINE PB210
  8.14E+03  4.81E-03  2.12E-04  7.94E-07  1.30E+07  0.00E+00
  1.60E+05  7.40E+05
PB210ING
DEFINE PB211
  2.51E-02  5.03E-02  8.27E-03  1.63E-05  8.00E+03  0.00E+00
  6.60E+04  9.70E+02
PB211ING
DEFINE PB212
  4.43E-01  1.48E-01  2.35E-02  4.58E-05  1.80E+05  0.00E+00
  7.30E+05  1.20E+05
PB212ING
DEFINE PB214
  1.86E-02  2.48E-01  3.96E-02  7.81E-05  6.70E+03  0.00E+00
  5.50E+04  1.00E+03
PB214ING
DEFINE PO210
  1.38E+02  8.50E-06  1.41E-06  2.65E-09  8.10E+06  0.00E+00
  4.80E+07  1.50E+07
PO210ING
DEFINE PO212
  3.53E-12  0.00E+00  0.00E+00  0.00E+00  1.80E-06  5.40E-17
  1.50E-05  5.40E-17
PO212ING
DEFINE PO213
  4.86E-11  0.00E+00  5.04E-06  0.00E+00  2.40E-05  2.40E-09
  2.00E-04  2.40E-09
PO213ING
DEFINE PO214
  1.90E-09  8.33E-05  1.38E-05  2.60E-08  8.70E-04  1.10E-07
  7.20E-03  1.10E-07
PO214ING
DEFINE PO215
  2.06E-08  1.76E-04  2.36E-05  5.57E-08  1.60E-02  5.20E-04
  1.40E-01  5.20E-04
PO215ING
DEFINE PO216
  1.74E-06  1.69E-05  2.40E-06  5.28E-09  1.40E+00  8.40E-02
  1.10E+01  8.40E-02
PO216ING
DEFINE PO218
  2.12E-03  9.12E-06  0.00E+00  2.84E-09  1.60E+03  8.40E+01
  1.30E+04  8.50E+01
PO218ING
DEFINE RA223
  1.14E+01  1.33E-01  2.13E-02  4.10E-05  7.50E+06  0.00E+00
  6.10E+07  8.20E+05
RA223ING
DEFINE RA224
```

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3.66E+00	9.89E-03	1.60E-03	3.06E-06	2.90E+06	0.00E+00
2.40E+07	4.10E+05				
RA224ING					
DEFINE RA225					
1.48E+01	1.37E-02	1.08E-03	4.26E-06	7.50E+06	0.00E+00
6.20E+06	6.00E+05				
RA225ING					
DEFINE RA226					
5.84E+05	6.74E-03	1.09E-03	2.06E-06	7.90E+06	0.00E+00
5.90E+07	3.20E+05				
RA226ING					
DEFINE RA228					
2.10E+03	4.14E-09	1.01E-11	0.00E+00	4.20E+06	0.00E+00
2.50E+07	1.70E+05				
RA228ING					
DEFINE TH227					
1.87E+01	1.06E-01	1.66E-02	3.33E-05	1.60E+07	0.00E+00
1.30E+08	8.90E+06				
TH227ING					
DEFINE TH228					
6.98E+02	3.30E-03	3.14E-04	7.52E-07	3.10E+08	0.00E+00
1.30E+09	1.20E+08				
TH228ING					
DEFINE TH229					
2.68E+06	9.54E-02	1.37E-02	2.73E-05	2.00E+09	0.00E+00
1.40E+09	1.40E+08				
TH229ING					
DEFINE TH230					
2.81E+07	1.55E-03	6.21E-05	2.40E-07	3.20E+08	0.00E+00
2.20E+08	1.40E+08				
TH230ING					
DEFINE TH231					
1.06E+00	2.55E-02	1.84E-03	5.89E-06	8.10E+02	0.00E+00
3.00E+03	9.10E+01				
TH231ING					
DEFINE TH232					
5.13E+12	1.33E-03	2.96E-05	1.76E-07	1.60E+09	0.00E+00
2.00E+08	1.90E+07				
TH232ING					
DEFINE TH234					
2.41E+01	9.34E-03	1.23E-03	2.66E-06	3.30E+04	0.00E+00
2.40E+05	1.50E+04				
TH234ING					
DEFINE TL207					
3.31E-03	2.21E-03	3.61E-04	1.20E-06	5.10E+00	1.00E-01
3.70E+01	1.00E-01				
TL207ING					
DEFINE TL208					
2.13E-03	3.36E+00	6.28E-01	9.54E-04	5.60E+00	1.90E-01
3.60E+01	8.10E-01				
TL208ING					
DEFINE TL209					
1.53E-03	2.03E+00	3.52E-01	6.08E-04	4.80E+00	2.00E-01

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	3.30E+01	5.00E-01				
TL209ING						
DEFINE U234						
	8.92E+07	1.73E-03	2.43E-05	2.39E-07	1.30E+08	0.00E+00
	2.30E+08	2.70E+05				
U234ING						
DEFINE U236						
	8.55E+09	1.57E-03	1.92E-05	2.08E-07	1.20E+08	0.00E+00
	2.20E+08	2.60E+05				
U236ING						
PACKAGE	TRU_S	1.000E+00	1.000	0.000	7.60	
AC225		7.140E-09	OTHER			
AC225		1.930E-07	OTHER			
AC227		4.370E-08	OTHER			
AC228		1.860E-04	OTHER			
AM241		8.540E+01	OTHER			
AM243		6.130E-02	OTHER			
AT217		1.930E-07	OTHER			
BI210		2.420E-03	OTHER			
BI211		4.170E-08	OTHER			
BI212		1.660E-03	OTHER			
BI214		2.740E-02	OTHER			
C14ORG		2.290E-01	OTHER			
CM244		2.140E+01	OTHER			
CO60		2.190E-01	OTHER			
CS137		2.680E-01	OTHER			
FR221		1.930E-07	OTHER			
I129		7.230E-05	OTHER			
NB94		4.580E-01	OTHER			
NP237		1.290E-03	OTHER			
NP239		6.130E-02	OTHER			
PA231		5.560E-07	OTHER			
PA233		1.290E-03	OTHER			
PA234		8.570E-05	OTHER			
PA234M		5.350E-02	OTHER			
PB209		1.920E-07	OTHER			
PB210		2.430E-03	OTHER			
PB211		4.170E-08	OTHER			
PB212		1.660E-03	OTHER			
PB214		2.740E-02	OTHER			
PO210		1.990E-03	OTHER			
PO212		1.060E-03	OTHER			
PO213		1.880E-07	OTHER			
PO214		2.740E-02	OTHER			
PO215		4.170E-08	OTHER			
PO216		1.660E-03	OTHER			
PO218		2.740E-02	OTHER			
PU238		7.640E+00	OTHER			
PU239		2.970E+01	OTHER			
PU240		7.830E+00	OTHER			
PU241		3.860E+02	OTHER			
PU242		7.550E-03	OTHER			
RA223		4.170E-08	OTHER			

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RA224	1.660E-03	OTHER								
RA225	1.950E-07	OTHER								
RA226	2.740E-02	OTHER								
RA228	1.860E-04	OTHER								
SR90	1.930E+02	OTHER								
TC99	2.770E-02	OTHER								
TH227	4.190E-08	OTHER								
TH228	1.650E-03	OTHER								
TH229	1.990E-07	OTHER								
TH230	1.520E-05	OTHER								
TH231	2.540E-03	OTHER								
TH232	6.130E-04	OTHER								
TH234	5.350E-02	OTHER								
TL207	4.160E-08	OTHER								
TL208	5.960E-04	OTHER								
TL209	4.160E-09	OTHER								
U233	6.910E-04	OTHER								
U234	3.090E-02	OTHER								
U235	2.540E-03	OTHER								
U236	1.310E-03	OTHER								
U238	5.350E-02	OTHER								
END										
VEHICLE -1 TRUCK	3.000E+00	1.000 0.000	7.60	1454.00						
	2.00	10.00 1.000	7.60							
TRU_S	3.00									
EOF										
LINK IDU	TRUCK	1.00	65.0	2.0	1764.70	1320.00	1.45E-06	U	1	0.00
LINK IDS	TRUCK	15.00	81.0	2.0	321.40	740.00	1.45E-06	S	1	0.00
LINK IDR	TRUCK	198.00	105.0	2.0	5.40	740.00	1.45E-06	R	1	0.00
LINK UTU	TRUCK	2.20	65.0	2.0	2257.60	2834.00	1.45E-06	U	1	0.00
LINK UTS	TRUCK	19.80	81.0	2.0	354.70	425.00	1.45E-06	S	1	0.00
LINK UTR	TRUCK	183.90	105.0	2.0	7.50	425.00	1.45E-06	R	1	0.00
LINK WYU	TRUCK	1.80	65.0	2.0	2519.40	363.00	1.45E-06	U	1	0.00
LINK WYS	TRUCK	30.70	81.0	2.0	383.00	266.00	1.45E-06	S	1	0.00
LINK WYR	TRUCK	550.10	105.0	2.0	2.00	266.00	1.45E-06	R	1	0.00
LINK COU	TRUCK	19.00	65.0	2.0	2064.70	2489.00	1.45E-06	U	1	0.00
LINK COS	TRUCK	85.50	81.0	2.0	414.20	563.00	1.45E-06	S	1	0.00
LINK COR	TRUCK	394.40	105.0	2.0	5.40	563.00	1.45E-06	R	1	0.00
LINK NMU	TRUCK	0.90	65.0	2.0	1764.70	1629.00	1.45E-06	U	1	0.00
LINK NMS	TRUCK	11.50	81.0	2.0	380.90	533.00	1.45E-06	S	1	0.00
LINK NMR	TRUCK	325.60	105.0	2.0	2.30	533.00	1.45E-06	R	1	0.00
LINK NMULOC	TRUCK	1.50	24.0	2.0	1770.40	313.00	1.45E-06	U	2	0.00
LINK NMSLOC	TRUCK	25.40	40.0	2.0	395.30	186.00	1.45E-06	S	2	0.00
LINK NMRLOC	TRUCK	383.30	73.0	2.0	2.70	186.00	1.45E-06	R	2	0.00
STOP STOPTRK	TRUCK	50.00	20.00	20.00	1.000	23.804				
EOF										

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PACKAGE AND MATERIAL CHARACTERISTICS

MATERIAL	DIMENSION (METERS)	EFFECTIVE DIMENSION METERS	K(0)	FRACTION METERS SQ.	FRACTION GAMMA	FRACTION NEUTRON	DOSE RATE (MRREM/HR)
TRU_S	7.600E+00	5.936E+00	1.574E+01	1.000E+00	0.000E+00	1.000E+00	

K(0) IS DOSE RATE CONVERSION FACTOR

VEHICLE CHARACTERISTICS

VEHICLE NAME	TRUCK
MODE TYPE	HIGHWAY
EXCLUSIVE USE	YES
DOSE RATE (MRREM/HR)	3.00E+00
K(0) (SQ. METERS)	1.57E+01
VEHICLE SIZE (M)	7.60E+00
EFFECTIVE SIZE (M)	5.94E+00
NUMBER OF SHIPMENTS	1.45E+03
NUMBER OF CREW	2.00E+00
CREW DISTANCE (M)	1.00E+01
CREW DOSE ADJUSTMENT FACT	1.00E+00
CREW EXPOSER WIDTH (M)	7.60E+00
EFFECTIVE EXPOSER WIDTH	5.94E+00
K(0) (SQ M) CREW EXPOSURE	1.57E+01

VEHICLE	MATERIAL	NO. PACKAGES
TRUCK	TRU_S	3.00E+00

TRANSFER

COEFFICIENTS:	MU	A(1)	A(2)	A(3)	A(4)
GAMMA	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NEUTRON	7.420E-03	2.020E-02	6.170E-05	3.170E-08	0.000E+00

DISTANCES (METERS)	FREEWAY	SECONDARY	STREET	RAIL	WATER	ADJACENT
OFFLINK:						
MINIMUM DISTANCE	3.00E+01	2.70E+01	5.00E+00	3.00E+01	2.00E+02	
SIDEWALK + MINIMUM	3.00E+01	3.00E+01	8.00E+00	3.00E+01	2.00E+02	
MAXIMUM DISTANCE	8.00E+02	8.00E+02	8.00E+02	8.00E+02	1.00E+03	
ONLINK:						
OPPOSITE DIRECTION	1.50E+01	3.00E+00	3.00E+00	3.00E+00		
ADJACENT VEHICLE						4.00E+00

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STOP RELATED DATA

	STOPTRK
VEHICLE	TRUCK
PERSONS	5.00E+01
MINIMUM DISTANCE (M)	2.00E+01
MAXIMUM DISTANCE (M)	2.00E+01
SHIELDING FACTOR	1.00E+00
TIME (HR)	2.38E+01

HANDLING RELATED DATA

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LINK RELATED DATA

VEHICLE	IDU	IDS	IDR	UTU	UTS
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	1.00E+00	1.50E+01	1.98E+02	2.20E+00	1.98E+01
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	6.50E+01	8.10E+01	1.05E+02	6.50E+01	8.10E+01
POPULATION DENSITY	1.76E+03	3.21E+02	5.40E+00	2.26E+03	3.55E+02
VEHICLE DENSITY	1.32E+03	7.40E+02	7.40E+02	2.83E+03	4.25E+02
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	URBAN	SUBURBAN	RURAL	URBAN	SUBURBAN
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	UTR	WYU	WYS	WYR	COU
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	1.84E+02	1.80E+00	3.07E+01	5.50E+02	1.90E+01
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	1.05E+02	6.50E+01	8.10E+01	1.05E+02	6.50E+01
POPULATION DENSITY	7.50E+00	2.52E+03	3.83E+02	2.00E+00	2.06E+03
VEHICLE DENSITY	4.25E+02	3.63E+02	2.66E+02	2.66E+02	2.49E+03
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	RURAL	URBAN	SUBURBAN	RURAL	URBAN
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	COS	COR	NMU	NMS	NMR
	TRUCK	TRUCK	TRUCK	TRUCK	TRUCK
DISTANCE (KM)	8.55E+01	3.94E+02	9.00E-01	1.15E+01	3.26E+02
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
SPEED (KM/HR)	8.10E+01	1.05E+02	6.50E+01	8.10E+01	1.05E+02
POPULATION DENSITY	4.14E+02	5.40E+00	1.76E+03	3.81E+02	2.30E+00
VEHICLE DENSITY	5.63E+02	5.63E+02	1.63E+03	5.33E+02	5.33E+02
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ZONE	SUBURBAN	RURAL	URBAN	SUBURBAN	RURAL
ROAD TYPE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	FREEWAY
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEHICLE	NMULoc	NMSLoc	NMRLoc		
	TRUCK	TRUCK	TRUCK		
DISTANCE (KM)	1.50E+00	2.54E+01	3.83E+02		
PERSONS PER VEHICLE	2.00E+00	2.00E+00	2.00E+00		
SPEED (KM/HR)	2.40E+01	4.00E+01	7.30E+01		
POPULATION DENSITY	1.77E+03	3.95E+02	2.70E+00		
VEHICLE DENSITY	3.13E+02	1.86E+02	1.86E+02		
ACCIDENT RATE/KM	1.45E-06	1.45E-06	1.45E-06		
ZONE	URBAN	SUBURBAN	RURAL		
ROAD TYPE	NON-FREEWAY	NON-FREEWAY	NON-FREEWAY		
FARMING FRACTION	0.00E+00	0.00E+00	0.00E+00		

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OU 7-13/14 Waste Metal

ISOTOPE RELATED DATA

NUCLIDE	CURIES PER PKG	RELEASE GROUP	RESUSPENSION FACTOR	50YR INHALATION (REM/CI) EFFECTIVE
TRU_S				
AC225	7.14E-09	OTHER	1.12E+00	1.00E+07
AC225	1.93E-07	OTHER	1.12E+00	1.00E+07
AC227	4.37E-08	OTHER	5.36E+00	6.70E+09
AC228	1.86E-04	OTHER	1.00E+00	2.90E+05
AM241	8.54E+01	OTHER	5.55E+00	5.90E+08
AM243	6.13E-02	OTHER	5.56E+00	5.90E+08
AT217	1.93E-07	OTHER	1.00E+00	3.30E-01
BI210	2.42E-03	OTHER	1.06E+00	1.90E+05
BI211	4.17E-08	OTHER	1.00E+00	5.70E+02
BI212	1.66E-03	OTHER	1.00E+00	2.10E+04
BI214	2.74E-02	OTHER	1.00E+00	6.30E+03
C14ORG	2.29E-01	OTHER	5.56E+00	2.10E+03
CM244	2.14E+01	OTHER	5.32E+00	3.10E+08
CO60	2.19E-01	OTHER	4.83E+00	2.80E+05
CS137	2.68E-01	OTHER	5.41E+00	3.20E+04
FR221	1.93E-07	OTHER	1.00E+00	4.00E+03
I129	7.23E-05	OTHER	5.57E+00	1.70E+05
NB94	4.58E-01	OTHER	5.57E+00	6.00E+05
NP237	1.29E-03	OTHER	5.57E+00	5.60E+08
NP239	6.13E-02	OTHER	1.03E+00	2.20E+03
PA231	5.56E-07	OTHER	5.57E+00	1.30E+09
PA233	1.29E-03	OTHER	1.31E+00	8.60E+03
PA234	8.57E-05	OTHER	1.00E+00	7.40E+02
PA234M	5.35E-02	OTHER	1.00E+00	2.00E+00
PB209	1.92E-07	OTHER	1.02E+00	9.00E+01
PB210	2.43E-03	OTHER	5.36E+00	1.30E+07
PB211	4.17E-08	OTHER	1.00E+00	8.00E+03
PB212	1.66E-03	OTHER	1.01E+00	1.80E+05
PB214	2.74E-02	OTHER	1.00E+00	6.70E+03
PO210	1.99E-03	OTHER	2.25E+00	8.10E+06
PO212	1.06E-03	OTHER	1.00E+00	1.80E-06
PO213	1.88E-07	OTHER	1.00E+00	2.40E-05
PO214	2.74E-02	OTHER	1.00E+00	8.70E-04
PO215	4.17E-08	OTHER	1.00E+00	1.60E-02
PO216	1.66E-03	OTHER	1.00E+00	1.40E+00
PO218	2.74E-02	OTHER	1.00E+00	1.60E+03
PU238	7.64E+00	OTHER	5.51E+00	5.30E+08
PU239	2.97E+01	OTHER	5.57E+00	5.70E+08
PU240	7.83E+00	OTHER	5.56E+00	5.70E+08
PU241	3.86E+02	OTHER	5.26E+00	9.90E+06
PU242	7.55E-03	OTHER	5.57E+00	5.30E+08
RA223	4.17E-08	OTHER	1.14E+00	7.50E+06
RA224	1.66E-03	OTHER	1.05E+00	2.90E+06
RA225	1.95E-07	OTHER	1.18E+00	7.50E+06
RA226	2.74E-02	OTHER	5.56E+00	7.90E+06
RA228	1.86E-04	OTHER	4.88E+00	4.20E+06
SR90	1.93E+02	OTHER	5.41E+00	2.40E+06
TC99	2.77E-02	OTHER	5.57E+00	1.40E+04
TH227	4.19E-08	OTHER	1.22E+00	1.60E+07
TH228	1.65E-03	OTHER	3.99E+00	3.10E+08
TH229	1.99E-07	OTHER	5.56E+00	2.00E+09
TH230	1.52E-05	OTHER	5.57E+00	3.20E+08

TH231	2.54E-03	OTHER	1.01E+00	8.10E+02
TH232	6.13E-04	OTHER	5.55E+00	1.60E+09
TH234	5.35E-02	OTHER	1.28E+00	3.30E+04
TL207	4.16E-08	OTHER	1.00E+00	5.10E+00
TL208	5.96E-04	OTHER	1.00E+00	5.60E+00
TL209	4.16E-09	OTHER	1.00E+00	4.80E+00
U233	6.91E-04	OTHER	5.57E+00	2.40E+08
U234	3.09E-02	OTHER	5.57E+00	1.30E+08
U235	2.54E-03	OTHER	5.57E+00	2.20E+08
U236	1.31E-03	OTHER	5.57E+00	1.20E+08
U238	5.35E-02	OTHER	5.55E+00	2.20E+08

OU 7-13/14 Waste Metal

NUCLIDE	HALF LIFE	GAMMA ENERGY	CLOUD FACTOR	GROUND FACTOR	INGESTION NUCLIDE	NEUTRON neutrons/sec/Ci	EMISSION
<u>TRU_S</u>							
AC225	1.00E+01	1.79E-02	2.15E-03	5.06E-06	AC225ING	N/A	
AC225	1.00E+01	1.79E-02	2.15E-03	5.06E-06	AC225ING	N/A	
AC227	7.95E+03	2.30E-04	1.99E-05	5.02E-08	AC227ING	N/A	
AC228	2.55E-01	9.30E-01	1.53E-01	2.97E-04	AC228ING	N/A	
AM241	1.58E+05	3.24E-02	3.03E-03	8.79E-06	Am-241	N/A	
AM243	2.70E+06	5.59E-02	8.07E-03	1.71E-05	Am-243	N/A	
AT217	3.74E-07	3.08E-04	3.84E-05	9.70E-08	AT217ING	N/A	
BI210	5.01E+00	0.00E+00	0.00E+00	3.36E-07	BI210ING	N/A	
BI211	1.49E-03	4.66E-02	7.51E-03	1.47E-05	BI211ING	N/A	
BI212	4.20E-02	1.85E-01	3.04E-02	5.73E-05	BI212ING	N/A	
BI214	1.38E-02	1.46E+00	2.57E-01	3.65E-04	BI214ING	N/A	
C14ORG	2.09E+06	0.00E+00	8.29E-07	5.15E-09	NONE	N/A	
CM244	6.62E+03	1.70E-03	1.82E-05	2.81E-07	Cm-244	N/A	
CO60	1.93E+03	2.50E+00	4.66E-01	7.51E-04	Co-60	N/A	
CS137	1.10E+04	5.96E-01	2.86E-05	1.77E-04	Cs-137	N/A	
FR221	3.33E-03	3.10E-02	4.95E-03	9.54E-06	FR221ING	N/A	
I129	5.73E+09	2.46E-02	1.41E-03	8.25E-06	I-129	N/A	
NB94	7.42E+06	1.57E+00	2.85E-01	4.89E-04	Nb-94	N/A	
NP237	7.82E+08	3.43E-02	3.81E-03	9.17E-06	Np-237	N/A	
NP239	2.36E+00	1.72E-01	2.66E-02	5.22E-05	NP239ING	N/A	
PA231	1.20E+07	4.76E-02	4.79E-03	1.30E-05	PA231ING	N/A	
PA233	2.70E+01	2.03E-01	3.39E-02	6.24E-05	PA233ING	N/A	
PA234	2.79E-01	1.75E+00	3.23E-01	5.89E-04	PA234ING	N/A	
PA234M	8.13E-04	1.13E-02	1.89E-03	4.90E-06	PA234MIN	N/A	
PB209	1.36E+00	0.00E+00	0.00E+00	9.63E-08	PB209ING	N/A	
PB210	8.14E+03	4.81E-03	2.12E-04	7.94E-07	PB210ING	N/A	
PB211	2.51E-02	5.03E-02	8.27E-03	1.63E-05	PB211ING	N/A	
PB212	4.43E-01	1.48E-01	2.35E-02	4.58E-05	PB212ING	N/A	
PB214	1.86E-02	2.48E-01	3.96E-02	7.81E-05	PB214ING	N/A	
PO210	1.38E+02	8.50E-06	1.41E-06	2.65E-09	PO210ING	N/A	
PO212	3.53E-12	0.00E+00	0.00E+00	0.00E+00	PO212ING	N/A	
PO213	4.86E-11	0.00E+00	5.04E-06	0.00E+00	PO213ING	N/A	
PO214	1.90E-09	8.33E-05	1.38E-05	2.60E-08	PO214ING	N/A	
PO215	2.06E-08	1.76E-04	2.36E-05	5.57E-08	PO215ING	N/A	
PO216	1.74E-06	1.69E-05	2.40E-06	5.28E-09	PO216ING	N/A	
PO218	2.12E-03	9.12E-06	0.00E+00	2.84E-09	PO218ING	N/A	
PU238	3.21E+04	1.81E-03	1.81E-05	2.68E-07	Pu-238	N/A	
PU239	8.79E+06	7.96E-04	1.57E-05	1.17E-07	Pu-239	N/A	
PU240	2.39E+06	1.73E-03	1.76E-05	2.57E-07	Pu-240	N/A	
PU241	5.26E+03	2.54E-06	2.68E-07	6.17E-10	Pu-241	N/A	
PU242	1.37E+08	1.44E-03	1.48E-05	2.13E-07	Pu-242	N/A	
RA223	1.14E+01	1.33E-01	2.13E-02	4.10E-05	RA223ING	N/A	
RA224	3.66E+00	9.89E-03	1.60E-03	3.06E-06	RA224ING	N/A	
RA225	1.48E+01	1.37E-02	1.08E-03	4.26E-06	RA225ING	N/A	
RA226	5.84E+05	6.74E-03	1.09E-03	2.06E-06	RA226ING	N/A	
RA228	2.10E+03	4.14E-09	1.01E-11	0.00E+00	RA228ING	N/A	
SR90	1.06E+04	0.00E+00	2.79E-05	9.08E-08	Sr-90	N/A	
TC99	7.78E+07	0.00E+00	5.99E-06	2.49E-08	Tc-99	N/A	
TH227	1.87E+01	1.06E-01	1.66E-02	3.33E-05	TH227ING	N/A	
TH228	6.98E+02	3.30E-03	3.14E-04	7.52E-07	TH228ING	N/A	
TH229	2.68E+06	9.54E-02	1.37E-02	2.73E-05	TH229ING	N/A	
TH230	2.81E+07	1.55E-03	6.21E-05	2.40E-07	TH230ING	N/A	

TH231	1.06E+00	2.55E-02	1.84E-03	5.89E-06	TH231ING	N/A
TH232	5.13E+12	1.33E-03	2.96E-05	1.76E-07	TH232ING	N/A
TH234	2.41E+01	9.34E-03	1.23E-03	2.66E-06	TH234ING	N/A
TL207	3.31E-03	2.21E-03	3.61E-04	1.20E-06	TL207ING	N/A
TL208	2.13E-03	3.36E+00	6.28E-01	9.54E-04	TL208ING	N/A
TL209	1.53E-03	2.03E+00	3.52E-01	6.08E-04	TL209ING	N/A
U233	5.79E+07	1.31E-03	6.03E-05	2.29E-07	U-233	N/A
U234	8.92E+07	1.73E-03	2.43E-05	2.39E-07	U234ING	N/A
U235	2.57E+11	1.54E-01	2.66E-02	4.73E-05	U-235	N/A
U236	8.55E+09	1.57E-03	1.92E-05	2.08E-07	U236ING	N/A
U238	1.63E+12	1.36E-03	1.26E-05	1.76E-07	U-238	N/A

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OU 7-13/14 Waste Metal

ISOTOPE RELATED DATA

NUCLIDE	1-YR INHALATION (REM/CI)		
	LUNG	MARROW	THYROID
TRU_S			
AC225	6.60E+07	1.40E+07	0.00E+00
AC225	6.60E+07	1.40E+07	0.00E+00
AC227	1.30E+09	3.70E+08	0.00E+00
AC228	4.70E+05	1.30E+05	0.00E+00
AM241	1.20E+08	1.70E+07	0.00E+00
AM243	1.10E+08	1.60E+07	0.00E+00
AT217	2.70E+00	1.60E-02	0.00E+00
BI210	1.60E+06	7.20E+02	0.00E+00
BI211	4.70E+03	5.70E+00	0.00E+00
BI212	1.40E+05	6.10E+02	0.00E+00
BI214	4.90E+04	1.90E+02	0.00E+00
C14ORG	2.10E+03	2.10E+03	0.00E+00
CM244	1.20E+08	1.70E+07	0.00E+00
CO60	7.90E+05	3.80E+04	0.00E+00
CS137	3.10E+04	2.60E+04	0.00E+00
FR221	3.20E+03	2.20E+02	0.00E+00
I129	1.70E+03	4.30E+02	5.77E+06
NB94	0.00E+00	0.00E+00	0.00E+00
NP237	1.00E+08	1.50E+07	0.00E+00
NP239	8.70E+03	3.50E+02	0.00E+00
PA231	2.60E+08	1.40E+07	0.00E+00
PA233	9.00E+02	2.70E+03	0.00E+00
PA234	3.30E+03	1.30E+02	0.00E+00
PA234M	1.60E+01	5.20E-03	0.00E+00
PB209	4.30E+02	2.20E+01	0.00E+00
PB210	1.60E+05	7.40E+05	0.00E+00
PB211	6.60E+04	9.70E+02	0.00E+00
PB212	7.30E+05	1.20E+05	0.00E+00
PB214	5.50E+04	1.00E+03	0.00E+00
PO210	4.80E+07	1.50E+07	0.00E+00
PO212	1.50E-05	5.40E-17	0.00E+00
PO213	2.00E-04	2.40E-09	0.00E+00
PO214	7.20E-03	1.10E-07	0.00E+00
PO215	1.40E-01	5.20E-04	0.00E+00
PO216	1.10E+01	8.40E-02	0.00E+00
PO218	1.30E+04	8.50E+01	0.00E+00
PU238	4.50E+08	1.10E+06	0.00E+00
PU239	4.20E+08	1.10E+06	0.00E+00
PU240	4.20E+08	1.10E+06	0.00E+00
PU241	3.60E+05	1.30E+03	0.00E+00
PU242	4.00E+08	1.00E+06	0.00E+00
RA223	6.10E+07	8.20E+05	0.00E+00
RA224	2.40E+07	4.10E+05	0.00E+00
RA225	6.20E+06	6.00E+05	0.00E+00
RA226	5.90E+07	3.20E+05	0.00E+00
RA228	2.50E+07	1.70E+05	0.00E+00
SR90	4.50E+06	3.80E+03	0.00E+00
TC99	1.00E+05	1.40E+02	0.00E+00
TH227	1.30E+08	8.90E+06	0.00E+00
TH228	1.30E+09	1.20E+08	0.00E+00
TH229	1.40E+09	1.40E+08	0.00E+00
TH230	2.20E+08	1.40E+08	0.00E+00

TH231	3.00E+03	9.10E+01	0.00E+00
TH232	2.00E+08	1.90E+07	0.00E+00
TH234	2.40E+05	1.50E+04	0.00E+00
TL207	3.70E+01	1.00E-01	0.00E+00
TL208	3.60E+01	8.10E-01	0.00E+00
TL209	3.30E+01	5.00E-01	0.00E+00
U233	4.00E+08	6.10E+03	0.00E+00
U234	2.30E+08	2.70E+05	0.00E+00
U235	3.60E+08	1.00E+04	0.00E+00
U236	2.20E+08	2.60E+05	0.00E+00
U238	3.50E+08	6.30E+03	0.00E+00

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OU 7-13/14 Waste Metal

RELEASE RELATED DATA

RELEASE FRACTIONS

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 0.00E+00 1.00E-02 1.00E-06 1.00E-05 1.00E-04 1.00E-03 1.00E-02

GROUP SEVER: 8
OTHER 1.00E-01

DEPOSITION VELOCITIES
GROUP M/SEC
OTHER 1.00E-02

ACCIDENT SEVERITY FRACTIONS
FOR HIGHWAY

ZONE SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
RURAL 4.62E-01 3.02E-01 1.76E-01 4.03E-02 1.18E-02 6.47E-03 5.71E-04
SUBURBAN 4.35E-01 2.85E-01 2.21E-01 5.06E-02 6.64E-03 1.74E-03 6.72E-05
URBAN 5.83E-01 3.82E-01 2.78E-02 6.36E-03 7.42E-04 1.46E-04 1.13E-05

ZONE SEVER: 8
RURAL 1.13E-04
SUBURBAN 5.93E-06
URBAN 9.94E-07

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OU 7-13/14 Waste Metal

AEROSOLIZED FRACTION OF RELEASED MATERIAL

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01 1.00E-01

GROUP SEVER: 8
OTHER 1.00E-01

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OU 7-13/14 Waste Metal

RESPIRABLE FRACTION OF AEROSOLS (BELOW 10 MICRONS AED)

GROUP SEVER: 1 SEVER: 2 SEVER: 3 SEVER: 4 SEVER: 5 SEVER: 6 SEVER: 7
OTHER 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02 5.00E-02

GROUP SEVER: 8
OTHER 5.00E-02

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OU 7-13/14 Waste Metal

NON-RADIOLOGICAL DATA (FATALITIES/KM)

HIGHWAY

	NORMAL OCCUPATIONAL	NORMAL NON-OCCUPATIONAL	ACCIDENT OCCUPATIONAL	ACCIDENT NON-OCCUPATIONAL
RURAL	0.00E+00	0.00E+00	1.50E-08	5.30E-08
SUBURBAN	0.00E+00	0.00E+00	3.70E-09	1.30E-08
URBAN	0.00E+00	0.00E+00	2.10E-09	7.50E-09

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OU 7-13/14 Waste Metal

HEALTH RELATED DATA

EARLY MORBIDITY THRESHOLD VALUE FOR LUNG 5.000E+02 REM
EARLY MORBIDITY THRESHOLD VALUE FOR MARROW/WHOLE BODY 5.000E+01 REM
EARLY MORBIDITY THRESHOLD VALUE FOR THYROID 2.000E+02 REM

EARLY FATALITY PROBABILITIES (EF)

DOSE (REM)	EF MARROW	DOSE (REM)	EF LUNG
680.00	1.00000	1525.00	1.00000
670.00	0.99999	1500.00	0.99999
660.00	0.99998	1475.00	0.99997
650.00	0.99996	1450.00	0.99991
640.00	0.99992	1425.00	0.99974
630.00	0.99983	1400.00	0.99933
620.00	0.99967	1375.00	0.99840
610.00	0.99938	1350.00	0.99653
600.00	0.99889	1325.00	0.99306
590.00	0.99808	1300.00	0.98709
580.00	0.99679	1275.00	0.97755
570.00	0.99482	1250.00	0.96331
560.00	0.99192	1225.00	0.94326
550.00	0.98776	1200.00	0.91656
540.00	0.98199	1175.00	0.88274
530.00	0.97423	1150.00	0.84178
520.00	0.96406	1125.00	0.79420
510.00	0.95111	1100.00	0.74095
500.00	0.93502	1075.00	0.68335
490.00	0.91551	1050.00	0.62293
480.00	0.89237	1025.00	0.56130
470.00	0.86552	1000.00	0.50000
460.00	0.83499	975.00	0.44042
450.00	0.80096	950.00	0.38372
440.00	0.76371	925.00	0.33077
430.00	0.72363	900.00	0.28218
420.00	0.68123	875.00	0.23830
410.00	0.63706	850.00	0.19925
400.00	0.59172	825.00	0.16498
390.00	0.54583	800.00	0.13529
380.00	0.50000	775.00	0.10988
370.00	0.45481	750.00	0.08837
360.00	0.41078	725.00	0.07038
350.00	0.36838	700.00	0.05548
340.00	0.32798	675.00	0.04329
330.00	0.28990	650.00	0.03341
320.00	0.25438	625.00	0.02549
310.00	0.22155	600.00	0.01922
300.00	0.19150	575.00	0.01430
290.00	0.16425	550.00	0.01050
280.00	0.13977	525.00	0.00759
270.00	0.11797	500.00	0.00000
260.00	0.09872		
250.00	0.08188		
240.00	0.06729		

230.00	0.05475
220.00	0.04408
210.00	0.03510
200.00	0.02761
190.00	0.02143
180.00	0.01639
170.00	0.01234
160.00	0.00913
150.00	0.00000

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OU 7-13/14 Waste Metal

DISPERSAL ACCIDENT INPUT

AREADA (M SQ)	CENTER LINE (M)	DILUTION FACTOR*
4.590E+02	3.300E+01	3.420E-03
1.530E+03	6.800E+01	1.720E-03
3.940E+03	1.050E+02	8.580E-04
1.250E+04	2.440E+02	3.420E-04
3.040E+04	3.690E+02	1.720E-04
6.850E+04	5.610E+02	8.580E-05
1.760E+05	1.018E+03	3.420E-05
4.450E+05	1.628E+03	1.720E-05
8.590E+05	2.308E+03	8.580E-06
2.550E+06	4.269E+03	3.420E-06
4.450E+06	5.468E+03	1.720E-06
1.030E+07	1.114E+04	8.580E-07
2.160E+07	1.310E+04	3.420E-07
5.520E+07	2.133E+04	1.720E-07
1.770E+08	4.050E+04	8.580E-08
4.890E+08	6.999E+04	5.420E-08
8.120E+08	8.986E+04	4.300E-08
1.350E+09	1.209E+05	3.420E-08

* DILUTION FACTOR UNITS ARE (CI-SEC/M**3/CI-RELEASED)

BUILDING DOSE FACTOR (BDF)	= 5.000E-02
CONTAMINATION CLEAN UP LEVEL (UCI/M**2) (CULVL)	= 2.000E-01
BREATHING RATE (M**3/SEC) (BRATE)	= 3.300E-04
INTERDICTION THRESHOLD (INTERDICT)	= 4.000E+01
EVACUATION TIME (DAYS) (EVACUATION)	= 1.000E+00
SURVEY INTERVAL (DAYS) (SURVEY)	= 1.000E+01
CAMPAIGN LENGTH (YEARS) (CAMPAIGN)	= 1.000E+00
FRACTION OF URBAN AREAS WITH BUILDINGS (UBF)	= 9.000E-01
FRACTION OF URBAN AREAS WITH SIDEWALKS (USWF)	= 1.000E-01
RATIO OF SIDEWALK PEDESTRIAN DENSITY (RPD)	= 6.000E+00
MAXIMUM IN-TRANSIT DOSE DISTANCE (M) (MITDDIST)	= 3.000E+01
MAXIMUM IN-TRANSIT DOSE VELOCITY (KM/H) (MITDVEL)	= 2.400E+01
IACC VALUE: 1=NON-DISPERSAL, 2=DISPERSAL	= 2
REGULATORY CHECK, 1=DO CHECKS, 0=NO CHECKS	= 1
BUILDING SHIELDING OPTION (IUOPT)	= 2
RURAL SHIELDING FACTOR	= 1.000E+00
SUBURBAN SHIELDING FACTOR	= 8.700E-01
URBAN SHIELDING FACTOR	= 1.800E-02

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OU 7-13/14 Waste Metal

INGESTION RELATED DATA

COMIDA INGESTION FILE USED: R5INGEST.BIN

COMIDA FILE HEADER

COMIDA2 25-Aug-00 25-Aug-0 Ver. 1.11a, 1/28/96: avoiding use of UNIT 6 for HP

DOSE CONVERSION FILE USED IN COMIDA

FGRDCF 05/08/95 16:43:45 beta-test version 1.10, minor FORTRAN fixes 5/4/95
Implicit daughter halflives (m) less than 90 and less than 0.100 of parent

NO INGESTION WILL BE CALCULATED FOR THE FOLLOWING ISOTOPES
INGESTION NUCLIDES ARE NOT IN INGESTION FILE

ISOTOPE	INGESTION NUCLIDE
AC225	AC225ING
AC225	AC225ING
AC227	AC227ING
AC228	AC228ING
AT217	AT217ING
BI210	BI210ING
BI211	BI211ING
BI212	BI212ING
BI214	BI214ING
C14ORG	NONE
FR221	FR221ING
NP239	NP239ING
PA231	PA231ING
PA233	PA233ING
PA234	PA234ING
PA234M	PA234MIN
PB209	PB209ING
PB210	PB210ING
PB211	PB211ING
PB212	PB212ING
PB214	PB214ING
PO210	PO210ING
PO212	PO212ING
PO213	PO213ING
PO214	PO214ING
PO215	PO215ING
PO216	PO216ING
PO218	PO218ING
RA223	RA223ING
RA224	RA224ING
RA225	RA225ING
RA226	RA226ING
RA228	RA228ING
TH227	TH227ING
TH228	TH228ING
TH229	TH229ING
TH230	TH230ING
TH231	TH231ING

TH232	TH232ING
TH234	TH234ING
TL207	TL207ING
TL208	TL208ING
TL209	TL209ING
U234	U234ING
U236	U236ING

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OU 7-13/14 Waste Metal

BACKYARD FARMER INGESTION DOSE (REM/CI DEPOSITED)

NUCLIDE	EFFECTIVE	THYROID
Am-241	2.846E+06	3.818E+01
Am-243	2.834E+06	1.968E+02
Cm-244	2.534E+06	3.924E+01
Co-60	4.308E+04	1.225E+04
Cs-137	4.870E+05	4.545E+05
I-129	2.779E+06	9.237E+07
Nb-94	3.381E+05	2.155E+04
Np-237	5.485E+06	5.028E+02
Pu-238	3.858E+04	2.301E-01
Pu-239	4.049E+04	2.169E-01
Pu-240	4.049E+04	2.172E-01
Pu-241	3.231E+03	3.837E-02
Pu-242	3.846E+04	2.134E-01
Sr-90	2.541E+05	9.964E+03
Tc-99	1.316E+04	5.396E+04
U-233	4.645E+04	6.821E+02
U-235	4.690E+04	6.379E+02
U-238	4.170E+04	5.976E+02

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OU 7-13/14 Waste Metal

SOCIETAL INGESTION DOSE (PERSON-REM/CI DEPOSITED)

NUCLIDE	GONADS	BREAST	LUNGS	RED MAR	BONE SU	THYROID	REMAIND	EFFECTI
Am-241	9.4E+01	9.1E-03	1.2E-02	5.0E+02	6.3E+03	4.6E-03	2.3E+02	3.4E+02
Am-243	9.4E+01	4.9E-02	6.8E-02	5.0E+02	6.3E+03	2.4E-02	2.3E+02	3.4E+02
Cm-244	7.6E+01	5.1E-03	5.1E-03	4.5E+02	5.6E+03	4.8E-03	2.4E+02	3.1E+02
Co-60	8.2E+00	2.8E+00	2.3E+00	3.4E+00	2.4E+00	2.0E+00	1.3E+01	7.1E+00
Cs-137	8.2E+01	7.4E+01	7.5E+01	7.8E+01	7.5E+01	7.5E+01	8.6E+01	8.0E+01
I-129	8.2E-01	2.0E+00	9.9E-01	1.3E+00	1.3E+00	1.5E+04	1.2E+00	4.5E+02
Nb-94	6.1E+01	1.2E+01	5.8E+00	2.5E+01	2.6E+01	4.2E+00	1.5E+02	6.5E+01
Np-237	1.5E+02	9.0E-02	9.5E-02	1.4E+03	1.7E+04	6.9E-02	1.3E+02	7.5E+02
Pu-238	8.1E-01	6.2E-05	3.0E-05	4.4E+00	5.5E+01	2.8E-05	7.5E+00	4.6E+00
Pu-239	9.2E-01	4.2E-05	2.7E-05	4.9E+00	6.1E+01	2.6E-05	7.4E+00	4.9E+00
Pu-240	9.2E-01	6.0E-05	2.9E-05	4.9E+00	6.1E+01	2.6E-05	7.4E+00	4.9E+00
Pu-241	1.4E-01	1.3E-05	1.7E-05	7.7E-01	9.6E+00	6.5E-06	3.7E-01	5.3E-01
Pu-242	8.7E-01	8.8E-05	3.2E-05	4.7E+00	5.8E+01	2.6E-05	7.0E+00	4.6E+00
Sr-90	1.8E+00	1.8E+00	1.8E+00	2.3E+02	4.9E+02	1.8E+00	7.3E+00	4.5E+01
Tc-99	4.1E-01	4.1E-01	4.1E-01	4.1E-01	4.1E-01	1.1E+01	6.9E+00	2.7E+00
U-233	9.4E-02	9.2E-02	9.2E-02	2.6E+00	4.0E+01	9.2E-02	1.6E+01	6.2E+00
U-235	2.9E-01	1.1E-01	8.8E-02	2.4E+00	3.7E+01	8.6E-02	1.6E+01	6.3E+00
U-238	8.9E-02	8.2E-02	8.1E-02	2.4E+00	3.5E+01	8.0E-02	1.4E+01	5.6E+00

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OU 7-13/14 Waste Metal

NON-RADIOLOGICAL RISK (FATALITIES)

	NORMAL OCCUPATIONAL	NORMAL NON-OCCUPATIONAL	ACCIDENT OCCUPATIONAL	ACCIDENT NON-OCCUPATIONAL
IDU	0.00E+00	0.00E+00	6.11E-06	2.18E-05
IDS	0.00E+00	0.00E+00	1.61E-04	5.67E-04
IDR	0.00E+00	0.00E+00	8.64E-03	3.05E-02
UTU	0.00E+00	0.00E+00	1.34E-05	4.80E-05
UTS	0.00E+00	0.00E+00	2.13E-04	7.49E-04
UTR	0.00E+00	0.00E+00	8.02E-03	2.83E-02
WYU	0.00E+00	0.00E+00	1.10E-05	3.93E-05
WYS	0.00E+00	0.00E+00	3.30E-04	1.16E-03
WYR	0.00E+00	0.00E+00	2.40E-02	8.48E-02
COU	0.00E+00	0.00E+00	1.16E-04	4.14E-04
COS	0.00E+00	0.00E+00	9.20E-04	3.23E-03
COR	0.00E+00	0.00E+00	1.72E-02	6.08E-02
NMU	0.00E+00	0.00E+00	5.50E-06	1.96E-05
NMS	0.00E+00	0.00E+00	1.24E-04	4.35E-04
NMR	0.00E+00	0.00E+00	1.42E-02	5.02E-02
NMULOC	0.00E+00	0.00E+00	9.16E-06	3.27E-05
NMSLoc	0.00E+00	0.00E+00	2.73E-04	9.60E-04
NMRLoc	0.00E+00	0.00E+00	1.67E-02	5.91E-02
TOTALS:	0.00E+00	0.00E+00	9.10E-02	3.21E-01

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OU 7-13/14 Waste Metal

REGULATORY CHECKS

THE SHIPMENT BY TRUCK IS DESIGNATED AS EXCLUSIVE USE
BUT IS NOT REQUIRED TO BE SO DESIGNATED BY REGULATIONS

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OU 7-13/14 Waste Metal

CALCULATIONAL INFORMATION

FOR TRUCK AREAS WITH TOTAL CONTAMINATION RATIO GREATER THAN 40.000
(THE AREAS MARKED WITH AN 'X' ARE INTERDICTED AND HAVE
NO 50 YEAR GROUNDSHINE DOSE AND NO INGESTION DOSE.)

AREA/SEVERITY	1	2	3	4	5	6	7	8
1	-	X	-	-	-	-	X	X
2	-	X	-	-	-	-	X	X
3	-	X	-	-	-	-	X	X
4	-	-	-	-	-	-	-	X
5	-	-	-	-	-	-	-	X
6	-	-	-	-	-	-	-	X
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-

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OU 7-13/14 Waste Metal

DILUTION FACTORS
CHI VALUES AFTER DEPLETION (CI-SEC/M**3/CI-RELEASED)

AREA	OTHER
4.59E+02	3.42E-03
1.53E+03	1.72E-03
3.94E+03	8.34E-04
1.25E+04	3.23E-04
3.04E+04	1.55E-04
6.85E+04	7.38E-05
1.76E+05	2.80E-05
4.45E+05	1.33E-05
8.59E+05	6.16E-06
2.55E+06	2.33E-06
4.45E+06	1.06E-06
1.03E+07	5.04E-07
2.16E+07	1.86E-07
5.52E+07	8.77E-08
1.77E+08	4.01E-08
4.89E+08	2.14E-08
8.12E+08	1.31E-08
1.35E+09	8.54E-09

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OU 7-13/14 Waste Metal

VEHICLE TRUCK

1-YEAR DOSE TO LUNG, INHALATION PATHWAY
 BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	5.60E+00	5.60E-04	5.60E-03	5.60E-02	5.60E-01	5.60E+00
6.80E+01	0.00E+00	2.81E+00	2.81E-04	2.81E-03	2.81E-02	2.81E-01	2.81E+00
1.05E+02	0.00E+00	1.37E+00	1.37E-04	1.37E-03	1.37E-02	1.37E-01	1.37E+00
2.44E+02	0.00E+00	5.28E-01	5.28E-05	5.28E-04	5.28E-03	5.28E-02	5.28E-01
3.69E+02	0.00E+00	2.53E-01	2.53E-05	2.53E-04	2.53E-03	2.53E-02	2.53E-01
5.61E+02	0.00E+00	1.21E-01	1.21E-05	1.21E-04	1.21E-03	1.21E-02	1.21E-01
1.02E+03	0.00E+00	4.58E-02	4.58E-06	4.58E-05	4.58E-04	4.58E-03	4.58E-02
1.63E+03	0.00E+00	2.17E-02	2.17E-06	2.17E-05	2.17E-04	2.17E-03	2.17E-02
2.31E+03	0.00E+00	1.01E-02	1.01E-06	1.01E-05	1.01E-04	1.01E-03	1.01E-02
4.27E+03	0.00E+00	3.81E-03	3.81E-07	3.81E-06	3.81E-05	3.81E-04	3.81E-03
5.47E+03	0.00E+00	1.74E-03	1.74E-07	1.74E-06	1.74E-05	1.74E-04	1.74E-03
1.11E+04	0.00E+00	8.24E-04	8.24E-08	8.24E-07	8.24E-06	8.24E-05	8.24E-04
1.31E+04	0.00E+00	3.05E-04	3.05E-08	3.05E-07	3.05E-06	3.05E-05	3.05E-04
2.13E+04	0.00E+00	1.44E-04	1.44E-08	1.44E-07	1.44E-06	1.44E-05	1.44E-04
4.05E+04	0.00E+00	6.56E-05	6.56E-09	6.56E-08	6.56E-07	6.56E-06	6.56E-05
7.00E+04	0.00E+00	3.50E-05	3.50E-09	3.50E-08	3.50E-07	3.50E-06	3.50E-05
8.99E+04	0.00E+00	2.14E-05	2.14E-09	2.14E-08	2.14E-07	2.14E-06	2.14E-05
1.21E+05	0.00E+00	1.40E-05	1.40E-09	1.40E-08	1.40E-07	1.40E-06	1.40E-05

CNTR LINE	SEVER: 8
3.30E+01	5.60E+01
6.80E+01	2.81E+01
1.05E+02	1.37E+01
2.44E+02	5.28E+00
3.69E+02	2.53E+00
5.61E+02	1.21E+00
1.02E+03	4.58E-01
1.63E+03	2.17E-01
2.31E+03	1.01E-01
4.27E+03	3.81E-02
5.47E+03	1.74E-02
1.11E+04	8.24E-03
1.31E+04	3.05E-03
2.13E+04	1.44E-03
4.05E+04	6.56E-04
7.00E+04	3.50E-04
8.99E+04	2.14E-04
1.21E+05	1.40E-04

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OU 7-13/14 Waste Metal

1-YEAR DOSE TO MARROW/WHOLE BODY, INHALATION PATHWAY
BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	3.16E-01	3.16E-05	3.16E-04	3.16E-03	3.16E-02	3.16E-01
6.80E+01	0.00E+00	1.59E-01	1.59E-05	1.59E-04	1.59E-03	1.59E-02	1.59E-01
1.05E+02	0.00E+00	7.71E-02	7.71E-06	7.71E-05	7.71E-04	7.71E-03	7.71E-02
2.44E+02	0.00E+00	2.98E-02	2.98E-06	2.98E-05	2.98E-04	2.98E-03	2.98E-02
3.69E+02	0.00E+00	1.43E-02	1.43E-06	1.43E-05	1.43E-04	1.43E-03	1.43E-02
5.61E+02	0.00E+00	6.82E-03	6.82E-07	6.82E-06	6.82E-05	6.82E-04	6.82E-03
1.02E+03	0.00E+00	2.59E-03	2.59E-07	2.59E-06	2.59E-05	2.59E-04	2.59E-03
1.63E+03	0.00E+00	1.23E-03	1.23E-07	1.23E-06	1.23E-05	1.23E-04	1.23E-03
2.31E+03	0.00E+00	5.70E-04	5.70E-08	5.70E-07	5.70E-06	5.70E-05	5.70E-04
4.27E+03	0.00E+00	2.15E-04	2.15E-08	2.15E-07	2.15E-06	2.15E-05	2.15E-04
5.47E+03	0.00E+00	9.81E-05	9.81E-09	9.81E-08	9.81E-07	9.81E-06	9.81E-05
1.11E+04	0.00E+00	4.66E-05	4.66E-09	4.66E-08	4.66E-07	4.66E-06	4.66E-05
1.31E+04	0.00E+00	1.72E-05	1.72E-09	1.72E-08	1.72E-07	1.72E-06	1.72E-05
2.13E+04	0.00E+00	8.11E-06	8.11E-10	8.11E-09	8.11E-08	8.11E-07	8.11E-06
4.05E+04	0.00E+00	3.71E-06	3.71E-10	3.71E-09	3.71E-08	3.71E-07	3.71E-06
7.00E+04	0.00E+00	1.98E-06	1.98E-10	1.98E-09	1.98E-08	1.98E-07	1.98E-06
8.99E+04	0.00E+00	1.21E-06	1.21E-10	1.21E-09	1.21E-08	1.21E-07	1.21E-06
1.21E+05	0.00E+00	7.90E-07	7.90E-11	7.90E-10	7.90E-09	7.90E-08	7.90E-07

CNTR LINE	SEVER: 8
3.30E+01	3.16E+00
6.80E+01	1.59E+00
1.05E+02	7.71E-01
2.44E+02	2.98E-01
3.69E+02	1.43E-01
5.61E+02	6.82E-02
1.02E+03	2.59E-02
1.63E+03	1.23E-02
2.31E+03	5.70E-03
4.27E+03	2.15E-03
5.47E+03	9.81E-04
1.11E+04	4.66E-04
1.31E+04	1.72E-04
2.13E+04	8.11E-05
4.05E+04	3.71E-05
7.00E+04	1.98E-05
8.99E+04	1.21E-05
1.21E+05	7.90E-06

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OU 7-13/14 Waste Metal

 1-YEAR DOSE TO THYROID, INHALATION PATHWAY
 BDF = 1 (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	7.06E-08	7.06E-12	7.06E-11	7.06E-10	7.06E-09	7.06E-08
6.80E+01	0.00E+00	3.55E-08	3.55E-12	3.55E-11	3.55E-10	3.55E-09	3.55E-08
1.05E+02	0.00E+00	1.72E-08	1.72E-12	1.72E-11	1.72E-10	1.72E-09	1.72E-08
2.44E+02	0.00E+00	6.66E-09	6.66E-13	6.66E-12	6.66E-11	6.66E-10	6.66E-09
3.69E+02	0.00E+00	3.20E-09	3.20E-13	3.20E-12	3.20E-11	3.20E-10	3.20E-09
5.61E+02	0.00E+00	1.52E-09	1.52E-13	1.52E-12	1.52E-11	1.52E-10	1.52E-09
1.02E+03	0.00E+00	5.78E-10	5.78E-14	5.78E-13	5.78E-12	5.78E-11	5.78E-10
1.63E+03	0.00E+00	2.74E-10	2.74E-14	2.74E-13	2.74E-12	2.74E-11	2.74E-10
2.31E+03	0.00E+00	1.27E-10	1.27E-14	1.27E-13	1.27E-12	1.27E-11	1.27E-10
4.27E+03	0.00E+00	4.81E-11	4.81E-15	4.81E-14	4.81E-13	4.81E-12	4.81E-11
5.47E+03	0.00E+00	2.19E-11	2.19E-15	2.19E-14	2.19E-13	2.19E-12	2.19E-11
1.11E+04	0.00E+00	1.04E-11	1.04E-15	1.04E-14	1.04E-13	1.04E-12	1.04E-11
1.31E+04	0.00E+00	3.84E-12	3.84E-16	3.84E-15	3.84E-14	3.84E-13	3.84E-12
2.13E+04	0.00E+00	1.81E-12	1.81E-16	1.81E-15	1.81E-14	1.81E-13	1.81E-12
4.05E+04	0.00E+00	8.28E-13	8.28E-17	8.28E-16	8.28E-15	8.28E-14	8.28E-13
7.00E+04	0.00E+00	4.42E-13	4.42E-17	4.42E-16	4.42E-15	4.42E-14	4.42E-13
8.99E+04	0.00E+00	2.70E-13	2.70E-17	2.70E-16	2.70E-15	2.70E-14	2.70E-13
1.21E+05	0.00E+00	1.76E-13	1.76E-17	1.76E-16	1.76E-15	1.76E-14	1.76E-13
CNTR LINE	SEVER: 8						
3.30E+01	7.06E-07						
6.80E+01	3.55E-07						
1.05E+02	1.72E-07						
2.44E+02	6.66E-08						
3.69E+02	3.20E-08						
5.61E+02	1.52E-08						
1.02E+03	5.78E-09						
1.63E+03	2.74E-09						
2.31E+03	1.27E-09						
4.27E+03	4.81E-10						
5.47E+03	2.19E-10						
1.11E+04	1.04E-10						
1.31E+04	3.84E-11						
2.13E+04	1.81E-11						
4.05E+04	8.28E-12						
7.00E+04	4.42E-12						
8.99E+04	2.70E-12						
1.21E+05	1.76E-12						

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OU 7-13/14 Waste Metal

VEHICLE TRUCK

GROUND SURFACE CONTAMINATION TABLE (MICRO CI/M**2)
BEFORE CLEANUP

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	7.52E+01	7.52E-03	7.52E-02	7.52E-01	7.52E+00	7.52E+01
6.80E+01	0.00E+00	3.77E+01	3.77E-03	3.77E-02	3.77E-01	3.77E+00	3.77E+01
1.05E+02	0.00E+00	1.83E+01	1.83E-03	1.83E-02	1.83E-01	1.83E+00	1.83E+01
2.44E+02	0.00E+00	7.09E+00	7.09E-04	7.09E-03	7.09E-02	7.09E-01	7.09E+00
3.69E+02	0.00E+00	3.40E+00	3.40E-04	3.40E-03	3.40E-02	3.40E-01	3.40E+00
5.61E+02	0.00E+00	1.62E+00	1.62E-04	1.62E-03	1.62E-02	1.62E-01	1.62E+00
1.02E+03	0.00E+00	6.15E-01	6.15E-05	6.15E-04	6.15E-03	6.15E-02	6.15E-01
1.63E+03	0.00E+00	2.91E-01	2.91E-05	2.91E-04	2.91E-03	2.91E-02	2.91E-01
2.31E+03	0.00E+00	1.36E-01	1.36E-05	1.36E-04	1.36E-03	1.36E-02	1.36E-01
4.27E+03	0.00E+00	5.12E-02	5.12E-06	5.12E-05	5.12E-04	5.12E-03	5.12E-02
5.47E+03	0.00E+00	2.33E-02	2.33E-06	2.33E-05	2.33E-04	2.33E-03	2.33E-02
1.11E+04	0.00E+00	1.11E-02	1.11E-06	1.11E-05	1.11E-04	1.11E-03	1.11E-02
1.31E+04	0.00E+00	4.09E-03	4.09E-07	4.09E-06	4.09E-05	4.09E-04	4.09E-03
2.13E+04	0.00E+00	1.93E-03	1.93E-07	1.93E-06	1.93E-05	1.93E-04	1.93E-03
4.05E+04	0.00E+00	8.81E-04	8.81E-08	8.81E-07	8.81E-06	8.81E-05	8.81E-04
7.00E+04	0.00E+00	4.71E-04	4.71E-08	4.71E-07	4.71E-06	4.71E-05	4.71E-04
8.99E+04	0.00E+00	2.87E-04	2.87E-08	2.87E-07	2.87E-06	2.87E-05	2.87E-04
1.21E+05	0.00E+00	1.88E-04	1.88E-08	1.88E-07	1.88E-06	1.88E-05	1.88E-04
 CNTR LINE SEVER: 8							
3.30E+01	7.52E+02						
6.80E+01	3.77E+02						
1.05E+02	1.83E+02						
2.44E+02	7.09E+01						
3.69E+02	3.40E+01						
5.61E+02	1.62E+01						
1.02E+03	6.15E+00						
1.63E+03	2.91E+00						
2.31E+03	1.36E+00						
4.27E+03	5.12E-01						
5.47E+03	2.33E-01						
1.11E+04	1.11E-01						
1.31E+04	4.09E-02						
2.13E+04	1.93E-02						
4.05E+04	8.81E-03						
7.00E+04	4.71E-03						
8.99E+04	2.87E-03						
1.21E+05	1.88E-03						

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OU 7-13/14 Waste Metal

VEHICLE TRUCK

MAXIMUM INDIVIDUAL CONSEQUENCE (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING EVACUATION

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	5.91E+00	5.91E-04	5.91E-03	5.91E-02	5.91E-01	5.91E+00
6.80E+01	0.00E+00	2.97E+00	2.97E-04	2.97E-03	2.97E-02	2.97E-01	2.97E+00
1.05E+02	0.00E+00	1.44E+00	1.44E-04	1.44E-03	1.44E-02	1.44E-01	1.44E+00
2.44E+02	0.00E+00	5.58E-01	5.58E-05	5.58E-04	5.58E-03	5.58E-02	5.58E-01
3.69E+02	0.00E+00	2.68E-01	2.68E-05	2.68E-04	2.68E-03	2.68E-02	2.68E-01
5.61E+02	0.00E+00	1.28E-01	1.28E-05	1.28E-04	1.28E-03	1.28E-02	1.28E-01
1.02E+03	0.00E+00	4.84E-02	4.84E-06	4.84E-05	4.84E-04	4.84E-03	4.84E-02
1.63E+03	0.00E+00	2.29E-02	2.29E-06	2.29E-05	2.29E-04	2.29E-03	2.29E-02
2.31E+03	0.00E+00	1.07E-02	1.07E-06	1.07E-05	1.07E-04	1.07E-03	1.07E-02
4.27E+03	0.00E+00	4.03E-03	4.03E-07	4.03E-06	4.03E-05	4.03E-04	4.03E-03
5.47E+03	0.00E+00	1.83E-03	1.83E-07	1.83E-06	1.83E-05	1.83E-04	1.83E-03
1.11E+04	0.00E+00	8.71E-04	8.71E-08	8.71E-07	8.71E-06	8.71E-05	8.71E-04
1.31E+04	0.00E+00	3.22E-04	3.22E-08	3.22E-07	3.22E-06	3.22E-05	3.22E-04
2.13E+04	0.00E+00	1.52E-04	1.52E-08	1.52E-07	1.52E-06	1.52E-05	1.52E-04
4.05E+04	0.00E+00	6.93E-05	6.93E-09	6.93E-08	6.93E-07	6.93E-06	6.93E-05
7.00E+04	0.00E+00	3.70E-05	3.70E-09	3.70E-08	3.70E-07	3.70E-06	3.70E-05
8.99E+04	0.00E+00	2.26E-05	2.26E-09	2.26E-08	2.26E-07	2.26E-06	2.26E-05
1.21E+05	0.00E+00	1.48E-05	1.48E-09	1.48E-08	1.48E-07	1.48E-06	1.48E-05

CNTR LINE	SEVER: 8
3.30E+01	5.91E+01
6.80E+01	2.97E+01
1.05E+02	1.44E+01
2.44E+02	5.58E+00
3.69E+02	2.68E+00
5.61E+02	1.28E+00
1.02E+03	4.84E-01
1.63E+03	2.29E-01
2.31E+03	1.07E-01
4.27E+03	4.03E-02
5.47E+03	1.83E-02
1.11E+04	8.71E-03
1.31E+04	3.22E-03
2.13E+04	1.52E-03
4.05E+04	6.93E-04
7.00E+04	3.70E-04
8.99E+04	2.26E-04
1.21E+05	1.48E-04

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OU 7-13/14 Waste Metal

VEHICLE TRUCK

BACKYARD FARMER DOSE - EFFECTIVE
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	3.59E+01	3.59E-03	3.59E-02	3.59E-01	3.59E+00	3.59E+01
6.80E+01	0.00E+00	1.80E+01	1.80E-03	1.80E-02	1.80E-01	1.80E+00	1.80E+01
1.05E+02	0.00E+00	8.76E+00	8.76E-04	8.76E-03	8.76E-02	8.76E-01	8.76E+00
2.44E+02	0.00E+00	3.39E+00	3.39E-04	3.39E-03	3.39E-02	3.39E-01	3.39E+00
3.69E+02	0.00E+00	1.62E+00	1.62E-04	1.62E-03	1.62E-02	1.62E-01	1.62E+00
5.61E+02	0.00E+00	7.74E-01	7.74E-05	7.74E-04	7.74E-03	7.74E-02	7.74E-01
1.02E+03	0.00E+00	2.94E-01	2.94E-05	2.94E-04	2.94E-03	2.94E-02	2.94E-01
1.63E+03	0.00E+00	1.39E-01	1.39E-05	1.39E-04	1.39E-03	1.39E-02	1.39E-01
2.31E+03	0.00E+00	6.47E-02	6.47E-06	6.47E-05	6.47E-04	6.47E-03	6.47E-02
4.27E+03	0.00E+00	2.44E-02	2.44E-06	2.44E-05	2.44E-04	2.44E-03	2.44E-02
5.47E+03	0.00E+00	1.11E-02	1.11E-06	1.11E-05	1.11E-04	1.11E-03	1.11E-02
1.11E+04	0.00E+00	5.29E-03	5.29E-07	5.29E-06	5.29E-05	5.29E-04	5.29E-03
1.31E+04	0.00E+00	1.95E-03	1.95E-07	1.95E-06	1.95E-05	1.95E-04	1.95E-03
2.13E+04	0.00E+00	9.21E-04	9.21E-08	9.21E-07	9.21E-06	9.21E-05	9.21E-04
4.05E+04	0.00E+00	4.21E-04	4.21E-08	4.21E-07	4.21E-06	4.21E-05	4.21E-04
7.00E+04	0.00E+00	2.25E-04	2.25E-08	2.25E-07	2.25E-06	2.25E-05	2.25E-04
8.99E+04	0.00E+00	1.37E-04	1.37E-08	1.37E-07	1.37E-06	1.37E-05	1.37E-04
1.21E+05	0.00E+00	8.96E-05	8.96E-09	8.96E-08	8.96E-07	8.96E-06	8.96E-05
CNTR LINE	SEVER: 8						
3.30E+01	3.59E+02						
6.80E+01	1.80E+02						
1.05E+02	8.76E+01						
2.44E+02	3.39E+01						
3.69E+02	1.62E+01						
5.61E+02	7.74E+00						
1.02E+03	2.94E+00						
1.63E+03	1.39E+00						
2.31E+03	6.47E-01						
4.27E+03	2.44E-01						
5.47E+03	1.11E-01						
1.11E+04	5.29E-02						
1.31E+04	1.95E-02						
2.13E+04	9.21E-03						
4.05E+04	4.21E-03						
7.00E+04	2.25E-03						
8.99E+04	1.37E-03						
1.21E+05	8.96E-04						

BACKYARD FARMER DOSE - THYROID
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
3.30E+01	0.00E+00	2.12E-01	2.12E-05	2.12E-04	2.12E-03	2.12E-02	2.12E-01
6.80E+01	0.00E+00	1.07E-01	1.07E-05	1.07E-04	1.07E-03	1.07E-02	1.07E-01
1.05E+02	0.00E+00	5.18E-02	5.18E-06	5.18E-05	5.18E-04	5.18E-03	5.18E-02
2.44E+02	0.00E+00	2.00E-02	2.00E-06	2.00E-05	2.00E-04	2.00E-03	2.00E-02
3.69E+02	0.00E+00	9.61E-03	9.61E-07	9.61E-06	9.61E-05	9.61E-04	9.61E-03
5.61E+02	0.00E+00	4.58E-03	4.58E-07	4.58E-06	4.58E-05	4.58E-04	4.58E-03
1.02E+03	0.00E+00	1.74E-03	1.74E-07	1.74E-06	1.74E-05	1.74E-04	1.74E-03
1.63E+03	0.00E+00	8.23E-04	8.23E-08	8.23E-07	8.23E-06	8.23E-05	8.23E-04

2.31E+03	0.00E+00	3.83E-04	3.83E-08	3.83E-07	3.83E-06	3.83E-05	3.83E-04
4.27E+03	0.00E+00	1.45E-04	1.45E-08	1.45E-07	1.45E-06	1.45E-05	1.45E-04
5.47E+03	0.00E+00	6.59E-05	6.59E-09	6.59E-08	6.59E-07	6.59E-06	6.59E-05
1.11E+04	0.00E+00	3.13E-05	3.13E-09	3.13E-08	3.13E-07	3.13E-06	3.13E-05
1.31E+04	0.00E+00	1.16E-05	1.16E-09	1.16E-08	1.16E-07	1.16E-06	1.16E-05
2.13E+04	0.00E+00	5.45E-06	5.45E-10	5.45E-09	5.45E-08	5.45E-07	5.45E-06
4.05E+04	0.00E+00	2.49E-06	2.49E-10	2.49E-09	2.49E-08	2.49E-07	2.49E-06
7.00E+04	0.00E+00	1.33E-06	1.33E-10	1.33E-09	1.33E-08	1.33E-07	1.33E-06
8.99E+04	0.00E+00	8.11E-07	8.11E-11	8.11E-10	8.11E-09	8.11E-08	8.11E-07
1.21E+05	0.00E+00	5.30E-07	5.30E-11	5.30E-10	5.30E-09	5.30E-08	5.30E-07

CNTR	LINE	SEVER:	8
3.30E+01		2.12E+00	
6.80E+01		1.07E+00	
1.05E+02		5.18E-01	
2.44E+02		2.00E-01	
3.69E+02		9.61E-02	
5.61E+02		4.58E-02	
1.02E+03		1.74E-02	
1.63E+03		8.23E-03	
2.31E+03		3.83E-03	
4.27E+03		1.45E-03	
5.47E+03		6.59E-04	
1.11E+04		3.13E-04	
1.31E+04		1.16E-04	
2.13E+04		5.45E-05	
4.05E+04		2.49E-05	
7.00E+04		1.33E-05	
8.99E+04		8.11E-06	
1.21E+05		5.30E-06	

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OU 7-13/14 Waste Metal

INCIDENT-FREE SUMMARY

***** * **** *****

IN-TRANSIT POPULATION EXPOSURE IN PERSON-REM

	PASSENGER	CREW	OFF LINK	ON LINK	TOTALS
IDU	0.00E+00	2.13E-02	6.98E-04	2.09E-02	4.29E-02
IDS	0.00E+00	2.56E-01	7.40E-02	1.12E-01	4.42E-01
IDR	0.00E+00	2.61E+00	1.45E-02	8.68E-01	3.49E+00
UTU	0.00E+00	4.69E-02	1.96E-03	9.85E-02	1.47E-01
UTS	0.00E+00	3.38E-01	1.08E-01	8.47E-02	5.31E-01
UTR	0.00E+00	2.42E+00	1.88E-02	4.63E-01	2.91E+00
WYU	0.00E+00	3.83E-02	1.79E-03	1.03E-02	5.05E-02
WYS	0.00E+00	5.25E-01	1.80E-01	8.22E-02	7.87E-01
WYR	0.00E+00	7.25E+00	1.50E-02	8.67E-01	8.14E+00
COU	0.00E+00	4.05E-01	1.55E-02	7.47E-01	1.17E+00
COS	0.00E+00	1.46E+00	5.43E-01	4.84E-01	2.49E+00
COR	0.00E+00	5.20E+00	2.90E-02	1.32E+00	6.55E+00
NMU	0.00E+00	1.92E-02	6.28E-04	2.32E-02	4.30E-02
NMS	0.00E+00	1.97E-01	6.72E-02	6.17E-02	3.25E-01
NMR	0.00E+00	4.29E+00	1.02E-02	1.03E+00	5.33E+00
NMULoc	0.00E+00	8.65E-02	1.40E-01	1.53E-01	3.80E-01
NMSLoc	0.00E+00	8.79E-01	3.81E-01	5.43E-01	1.80E+00
NMRLoc	0.00E+00	7.27E+00	2.41E-02	2.42E+00	9.72E+00
RURAL	0.00E+00	2.91E+01	1.12E-01	6.97E+00	3.61E+01
SUBURB	0.00E+00	3.66E+00	1.35E+00	1.37E+00	6.38E+00
URBAN	0.00E+00	6.17E-01	1.60E-01	1.05E+00	1.83E+00
TOTALS:	0.00E+00	3.33E+01	1.63E+00	9.39E+00	4.43E+01

MAXIMUM INDIVIDUAL IN-TRANSIT DOSE

TRUCK 2.62E-04 REM

RUN DATE: [9-Mar-02 AT 07:56:00]

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OU 7-13/14 Waste Metal

STOP EXPOSURE IN PERSON-REM

POINT-SOURCE STOPTRK 2.04E+02

TOTAL: 2.04E+02

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OU 7-13/14 Waste Metal

ACCIDENT SUMMARY

NUMBER OF EXPECTED ACCIDENTS

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	1.23E-03	1.38E-02	1.93E-01	2.70E-03	1.82E-02	1.79E-01	2.21E-03
2	8.05E-04	9.01E-03	1.26E-01	1.77E-03	1.19E-02	1.17E-01	1.45E-03
3	5.86E-05	6.99E-03	7.35E-02	1.29E-04	9.23E-03	6.82E-02	1.05E-04
4	1.34E-05	1.60E-03	1.68E-02	2.95E-05	2.11E-03	1.56E-02	2.41E-05
5	1.56E-06	2.10E-04	4.93E-03	3.44E-06	2.77E-04	4.58E-03	2.82E-06
6	3.08E-07	5.50E-05	2.70E-03	6.77E-07	7.26E-05	2.51E-03	5.54E-07
7	2.38E-08	2.13E-06	2.38E-04	5.24E-08	2.81E-06	2.21E-04	4.29E-08
8	2.10E-09	1.88E-07	4.72E-05	4.61E-09	2.48E-07	4.38E-05	3.77E-09

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	2.82E-02	5.36E-01	2.34E-02	7.84E-02	3.84E-01	1.11E-03	1.05E-02
2	1.84E-02	3.50E-01	1.53E-02	5.14E-02	2.51E-01	7.25E-04	6.91E-03
3	1.43E-02	2.04E-01	1.11E-03	3.98E-02	1.46E-01	5.27E-05	5.36E-03
4	3.28E-03	4.67E-02	2.55E-04	9.12E-03	3.35E-02	1.21E-05	1.23E-03
5	4.30E-04	1.37E-02	2.97E-05	1.20E-03	9.81E-03	1.41E-06	1.61E-04
6	1.13E-04	7.50E-03	5.85E-06	3.14E-04	5.38E-03	2.77E-07	4.22E-05
7	4.35E-06	6.62E-04	4.53E-07	1.21E-05	4.75E-04	2.14E-08	1.63E-06
8	3.84E-07	1.31E-04	3.98E-08	1.07E-06	9.40E-05	1.89E-09	1.44E-07

CATEGORY	NMR	NMULoc	NMSLoc	NMRLoc
1	3.17E-01	1.84E-03	2.33E-02	3.73E-01
2	2.07E-01	1.21E-03	1.53E-02	2.44E-01
3	1.21E-01	8.79E-05	1.18E-02	1.42E-01
4	2.77E-02	2.01E-05	2.71E-03	3.26E-02
5	8.10E-03	2.35E-06	3.56E-04	9.54E-03
6	4.44E-03	4.62E-07	9.32E-05	5.23E-03
7	3.92E-04	3.57E-08	3.60E-06	4.61E-04
8	7.76E-05	3.14E-09	3.18E-07	9.13E-05

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OU 7-13/14 Waste Metal

EARLY FATALITY CONSEQUENCES

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	0.00E+00						
3	0.00E+00						
4	0.00E+00						
5	0.00E+00						
6	0.00E+00						
7	0.00E+00						
8	0.00E+00						

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	0.00E+00						
3	0.00E+00						
4	0.00E+00						
5	0.00E+00						
6	0.00E+00						
7	0.00E+00						
8	0.00E+00						

CATEGORY	NMR	NMULoc	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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OU 7-13/14 Waste Metal

RADIOLOGICAL CONSEQUENCES
50 YEAR POPULATION DOSE IN PERSON-REM

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	4.86E+02	1.37E+02	2.31E+00	6.22E+02	1.51E+02	3.20E+00	6.94E+02
3	1.88E-01	5.30E-02	8.90E-04	2.40E-01	5.85E-02	1.24E-03	2.68E-01
4	1.88E+00	5.30E-01	8.90E-03	2.40E+00	5.85E-01	1.24E-02	2.68E+00
5	1.88E+01	5.30E+00	8.90E-02	2.40E+01	5.85E+00	1.24E-01	2.68E+01
6	1.88E+02	5.29E+01	8.90E-01	2.40E+02	5.84E+01	1.24E+00	2.68E+02
7	4.86E+02	1.37E+02	2.31E+00	6.22E+02	1.51E+02	3.20E+00	6.94E+02
8	3.56E+03	1.01E+03	1.69E+01	4.56E+03	1.11E+03	2.35E+01	5.09E+03

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	1.64E+02	8.54E-01	5.69E+02	1.77E+02	2.31E+00	4.86E+02	1.63E+02
3	6.32E-02	3.30E-04	2.20E-01	6.83E-02	8.90E-04	1.88E-01	6.28E-02
4	6.32E-01	3.30E-03	2.20E+00	6.83E-01	8.90E-03	1.88E+00	6.28E-01
5	6.31E+00	3.30E-02	2.20E+01	6.83E+00	8.90E-02	1.88E+01	6.28E+00
6	6.31E+01	3.29E-01	2.19E+02	6.82E+01	8.90E-01	1.88E+02	6.27E+01
7	1.64E+02	8.54E-01	5.69E+02	1.77E+02	2.31E+00	4.86E+02	1.63E+02
8	1.20E+03	6.26E+00	4.17E+03	1.30E+03	1.69E+01	3.56E+03	1.19E+03

CATEGORY	NMR	NMULoc	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	9.82E-01	4.88E+02	1.69E+02	1.15E+00
3	3.79E-04	1.88E-01	6.52E-02	4.45E-04
4	3.79E-03	1.88E+00	6.52E-01	4.45E-03
5	3.79E-02	1.88E+01	6.52E+00	4.45E-02
6	3.79E-01	1.88E+02	6.51E+01	4.45E-01
7	9.82E-01	4.88E+02	1.69E+02	1.15E+00
8	7.20E+00	3.57E+03	1.24E+03	8.45E+00

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OU 7-13/14 Waste Metal

MAXIMUM RISK FOR INDIVIDUAL IN NEAREST ISOPLETH (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING EVACUATION

CATEGORY	IDU	IDS	IDR	UTU	UTS	UTR	WYU
1	0.00E+00						
2	4.76E-03	5.33E-02	7.46E-01	1.05E-02	7.04E-02	6.92E-01	8.57E-03
3	3.47E-08	4.13E-06	4.35E-05	7.63E-08	5.46E-06	4.04E-05	6.24E-08
4	7.93E-08	9.46E-06	9.95E-05	1.74E-07	1.25E-05	9.24E-05	1.43E-07
5	9.25E-08	1.24E-05	2.91E-04	2.04E-07	1.64E-05	2.71E-04	1.67E-07
6	1.82E-07	3.25E-05	1.60E-03	4.00E-07	4.30E-05	1.48E-03	3.28E-07
7	1.41E-07	1.26E-05	1.41E-03	3.10E-07	1.66E-05	1.31E-03	2.54E-07
8	1.24E-07	1.11E-05	2.79E-03	2.73E-07	1.46E-05	2.59E-03	2.23E-07

CATEGORY	WYS	WYR	COU	COS	COR	NMU	NMS
1	0.00E+00						
2	1.09E-01	2.07E+00	9.05E-02	3.04E-01	1.49E+00	4.29E-03	4.09E-02
3	8.46E-06	1.21E-04	6.59E-07	2.36E-05	8.65E-05	3.12E-08	3.17E-06
4	1.94E-05	2.76E-04	1.51E-06	5.39E-05	1.98E-04	7.14E-08	7.26E-06
5	2.54E-05	8.09E-04	1.76E-06	7.08E-05	5.80E-04	8.33E-08	9.52E-06
6	6.66E-05	4.44E-03	3.46E-06	1.85E-04	3.18E-03	1.64E-07	2.49E-05
7	2.57E-05	3.92E-03	2.68E-06	7.16E-05	2.81E-03	1.27E-07	9.64E-06
8	2.27E-05	7.75E-03	2.35E-06	6.32E-05	5.56E-03	1.12E-07	8.50E-06

CATEGORY	NMR	NMULOC	NMSLoc	NMRLoc
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	1.23E+00	7.14E-03	9.03E-02	1.44E+00
3	7.15E-05	5.20E-08	7.00E-06	8.41E-05
4	1.64E-04	1.19E-07	1.60E-05	1.93E-04
5	4.79E-04	1.39E-07	2.10E-05	5.64E-04
6	2.63E-03	2.73E-07	5.51E-05	3.09E-03
7	2.32E-03	2.11E-07	2.13E-05	2.73E-03
8	4.59E-03	1.86E-07	1.88E-05	5.40E-03

RADIOLOGICAL CONSEQUENCES IN PERSON REM
50 YEAR SOCIETAL INGESTION DOSE - EFFECTIVE

LINK	SEVER: 1	SEVER: 2	SEVER: 3	SEVER: 4	SEVER: 5	SEVER: 6	SEVER: 7
IDR	0.00E+00						
UTR	0.00E+00						
WYR	0.00E+00						
COR	0.00E+00						
NMR	0.00E+00						
NMRLoc	0.00E+00						
LINK	SEVER: 8						
IDR	0.00E+00						
UTR	0.00E+00						
WYR	0.00E+00						
COR	0.00E+00						
NMR	0.00E+00						
NMRLoc	0.00E+00						

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OU 7-13/14 Waste Metal

EXPECTED VALUES OF POPULATION RISK IN PERSON-REM

	GROUND	INHALED	RESUSPD	CLOUDSH	TOTAL
IDU	6.75E-03	2.72E-01	1.13E-01	9.67E-08	3.92E-01
IDS	2.14E-02	8.61E-01	3.61E-01	3.06E-07	1.24E+00
IDR	5.06E-03	2.04E-01	8.65E-02	7.24E-08	2.95E-01
UTU	1.90E-02	7.66E-01	3.18E-01	2.72E-07	1.10E+00
UTS	3.11E-02	1.25E+00	5.26E-01	4.46E-07	1.81E+00
UTR	6.52E-03	2.63E-01	1.12E-01	9.34E-08	3.81E-01
WYU	1.74E-02	6.99E-01	2.90E-01	2.48E-07	1.01E+00
WYS	5.21E-02	2.10E+00	8.80E-01	7.46E-07	3.03E+00
WYR	5.20E-03	2.10E-01	8.90E-02	7.45E-08	3.04E-01
COU	1.50E-01	6.05E+00	2.51E+00	2.15E-06	8.71E+00
COS	1.57E-01	6.32E+00	2.65E+00	2.25E-06	9.13E+00
COR	1.01E-02	4.06E-01	1.72E-01	1.44E-07	5.88E-01
NMU	6.08E-03	2.45E-01	1.02E-01	8.70E-08	3.52E-01
NMS	1.94E-02	7.82E-01	3.28E-01	2.78E-07	1.13E+00
NMR	3.54E-03	1.43E-01	6.06E-02	5.07E-08	2.07E-01
NMULoc	1.02E-02	4.09E-01	1.70E-01	1.45E-07	5.89E-01
NMSLoc	4.45E-02	1.79E+00	7.52E-01	6.37E-07	2.59E+00
NMRLoc	4.89E-03	1.97E-01	8.37E-02	7.01E-08	2.86E-01
RURAL	3.53E-02	1.42E+00	6.03E-01	5.05E-07	2.06E+00
SUBURB	3.26E-01	1.31E+01	5.50E+00	4.66E-06	1.89E+01
URBAN	2.09E-01	8.44E+00	3.50E+00	3.00E-06	1.21E+01
TOTALS:	5.70E-01	2.30E+01	9.60E+00	8.16E-06	3.31E+01

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OU 7-13/14 Waste Metal

SOCIETAL INGESTION RISK - PERSON-REM

LINK	GONADS	EFFECTIVE
IDR	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00

SOCIETAL INGESTION RISK BY ORGAN - PERSON-REM

LINK	BREAST	LUNGS	RED MARR	BONE SUR	THYROID	REMAINDER
IDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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OU 7-13/14 Waste Metal

EXPECTED RISK VALUES - OTHER

LINK	EARLY FATALITY	EARLY MORBIDITY
IDU	0.00E+00	0.00E+00
IDS	0.00E+00	0.00E+00
IDR	0.00E+00	0.00E+00
UTU	0.00E+00	0.00E+00
UTS	0.00E+00	0.00E+00
UTR	0.00E+00	0.00E+00
WYU	0.00E+00	0.00E+00
WYS	0.00E+00	0.00E+00
WYR	0.00E+00	0.00E+00
COU	0.00E+00	0.00E+00
COS	0.00E+00	0.00E+00
COR	0.00E+00	0.00E+00
NMU	0.00E+00	0.00E+00
NMS	0.00E+00	0.00E+00
NMR	0.00E+00	0.00E+00
NMULoc	0.00E+00	0.00E+00
NMSLoc	0.00E+00	0.00E+00
NMRLoc	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00

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OU 7-13/14 Waste Metal

TOTAL EXPOSED POPULATION: INCIDENT-FREE

IDU	3.96E+03	PERSONS
IDS	1.08E+04	PERSONS
IDR	2.40E+03	PERSONS
UTU	1.12E+04	PERSONS
UTS	1.58E+04	PERSONS
UTR	3.10E+03	PERSONS
WYU	1.02E+04	PERSONS
WYS	2.64E+04	PERSONS
WYR	2.47E+03	PERSONS
COU	8.81E+04	PERSONS
COS	7.95E+04	PERSONS
COR	4.78E+03	PERSONS
NMU	3.57E+03	PERSONS
NMS	9.84E+03	PERSONS
NMR	1.68E+03	PERSONS
NMULOC	5.96E+03	PERSONS
NMSLoc	2.25E+04	PERSONS
NMRLoc	2.32E+03	PERSONS

TOTAL 3.05E+05 PERSONS

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OU 7-13/14 Waste Metal

TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

IDU	2.38E+06	PERSONS
IDS	4.34E+05	PERSONS
IDR	7.29E+03	PERSONS
UTU	3.05E+06	PERSONS
UTS	4.79E+05	PERSONS
UTR	1.01E+04	PERSONS
WYU	3.40E+06	PERSONS
WYS	5.17E+05	PERSONS
WYR	2.70E+03	PERSONS
COU	2.79E+06	PERSONS
COS	5.59E+05	PERSONS
COR	7.29E+03	PERSONS
NMU	2.38E+06	PERSONS
NMS	5.14E+05	PERSONS
NMR	3.11E+03	PERSONS
NMULoc	2.39E+06	PERSONS
NMSLoc	5.34E+05	PERSONS
NMRLoc	3.65E+03	PERSONS

EOI
END OF RUN

